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C. E. DURST, Managing Editor
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J. C. BILLINGSLEA
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Harvesting and Handling Apples for Storage

By Clarence E. Baker

Purdue University Agricultural Experiment Station

Condition at Time of Picking Is Important Factor

AFTER a crop of apples has been well cared for during the summer and protected against insects and diseases by application of the proper sprays, the next question confronting the grower is, "When will they be ready to harvest?"

The correct answer to this question is very important, as the harvesting of apples at the proper stage of maturity largely determines how they will keep in storage and whether or not they will develop into apples of good quality. Apples that are picked when too immature are more subject to storage scald and wilting and are unlikely ever to reach the high degree of flavor and quality attained by the apple that is permitted to remain upon the tree until fully mature.

Over-mature fruit is also subject to storage troubles in the form of the development of a dry "mealy" condition or other more serious forms of internal breakdown, leading to a browning or darkening of the flesh and general development of poor quality in storage. Some varieties of apples are very subject to the development of water core when permitted to remain upon the tree too long.

Unfortunately, the question of determining when to remove apples from the tree in order that they may develop into the highest quality of fruit in storage is not a simple one to answer. In fact, this question is so complicated that investigations have been in progress all over the country in an attempt to find some definite standards by which maturity could be determined and correlated with the development of quality in storage.

Processes in Operation During Late Growth and Storage

To understand what is taking place in the maturing fruit, let us follow some of the processes operating during the latter part of the growing season and after the fruit is placed in storage.

As long as the apple is attached to the tree, it is gradually increasing in size. The rate of this increase and the ultimate size attained will depend upon the food supply, the amount of moisture present in the soil, the general vigor of the tree, and many other factors.

The color of the apple is also changing as it approaches maturity upon the tree. A yellow apple gradually loses its green and develops a yellow color if permitted to remain on the tree until fully mature. On red apples, the green of the unblushed portion gradually gives way to a yellow ground color. The red surface increases with the exposure to light and proper temperature. Bright days during early fall with cool nights are especially favorable for the development of red coloring in apples.

With the change in the skin coloring, there is also a change in texture. It becomes heavier and tougher; the lenticels or breathing pores become corked over; and a waxy coating is formed, making a hermetically sealed and nearly air-tight product.

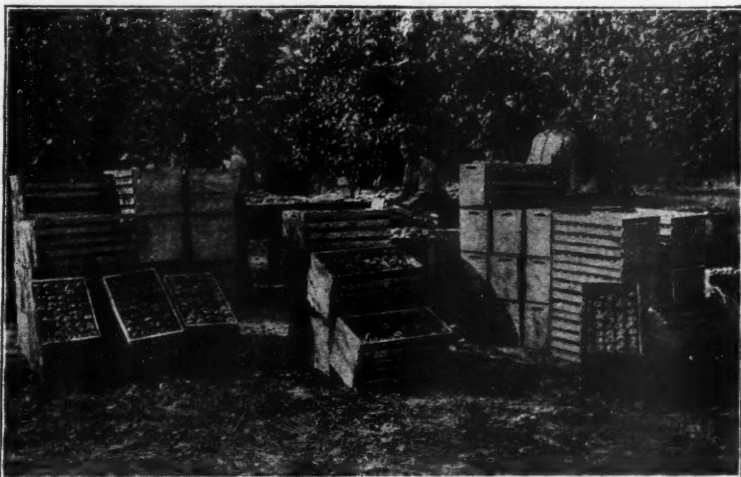
Internally, many interesting changes are also taking place. The starches are gradually changing to sugars, and the acids are beginning to disappear

along with many other complicated transformations resulting in the development of quality and a softening of the flesh.

When the apple is removed from the tree, there is no further increase in size or further development of the red coloring. Most of the other processes continue. The yellow ground color continues to develop, replacing the green and giving added beauty to the overlying red. The decrease of acids and the changes from starch to sugar go on, together with a breaking down of the pectin material that cements the cells together, leading to a softening of the flesh of the apple. This goes on indefinitely until finally

the prime eating condition is passed and the fruit becomes tasteless, unattractive and worthless.

The rapidity with which these processes take place in storage depends largely upon the temperature. At high temperature, they proceed rapidly but are reduced to the minimum where the fruit is held at a temperature close to its freezing point. For this reason, storage at low temperatures is resorted to in order to prolong the life of the fruit. Even at cold storage temperatures, these processes go on slowly, resulting in a gradual progress of the processes above described throughout the storage season.



The practice of barrelling apples in the orchard is not a good one when the fruit is packed warm and is left in the heat of the orchard. If the fruit is carefully shaded at all times, the danger of loss is lessened

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From this brief review of the physiological processes involved, it may be seen that the degree with which these processes have been permitted to advance while the fruit is on the tree has a direct bearing upon the behavior of the fruit in storage. In fruit picked immaturity, these important developments in the life of the apple have not progressed sufficiently that they will continue in the right direction or to the proper degree at storage temperature. On the other hand, if the fruit is over-mature when harvested, even the storage temperature might not sufficiently retard the ripening process to the degree that the prime eating condition would not be passed before the end of the storage period.

The Proper Time to Harvest

Let us return now to our original question. When are apples ready to harvest?

First of all, they should be well colored. Everyone wants a well colored apple. Many people hold that a well colored apple possesses a more delicious flavor than one of the same variety that is poorly colored. In any event, the psychological effect is in favor of the high colored apple. Under some conditions of weather and cultural conditions, it is impossible to attain a maximum development of the red color before over-maturity is reached. For this reason undue emphasis must not be placed upon this factor when determining when to pick fruit, but all the color possible should be secured.

The development of the ground color is perhaps a much better indication of the approach of maturity upon the tree, although this factor also is influenced by seasonal and weather conditions.

With most varieties, there seems to be a rather natural dropping from the tree as soon as the fruit is mature. In any case, if the fruit begins to drop badly, it will be necessary to harvest it without delay. Certain varieties, of which Jonathan is a typical example, frequently do not drop from the tree when a satisfactory degree of maturity is reached but will hang on the tree until this stage is far past. As a general rule, however, there is a certain decrease in the tenacity with which the fruit clings to the tree during the latter part of the ripening season, and this usually can be depended upon to furnish a satisfactory indication of the proper time for picking. On a small acreage the extent of natural dropping can be depended upon somewhat, but danger of excessive dropping from wind and other causes precludes the advisability of waiting for this stage in a large commercial planting.

The decrease in firmness of flesh is generally considered to take place too slowly during the latter part of the growing season to provide an accurate indication of picking maturity other than a warning as to when the fruit is becoming too soft upon the tree.

When the development of the ground color, the ease with which the

(Continued on page 16)

The New Prune Drier of the Pacific Coast

By J. R. Beck

SEVENTY-FIVE million pounds of Italian prunes expressed in terms of dried fruit in the two states of Oregon and Washington and not enough drier space in which to dry them. That was the situation that confronted the prune men of that district in the fall of 1926. It was this condition that forced the attention of everyone to the necessity of greater drier space and resulted in the building of several of the new type of driers in which the efficiency is increased by a re-circulation of the warm air as compared to the old type where the air after first passing over the fruit escaped out to the outside atmosphere and fresh air was heated.

The re-circulation drier, as it is generally known in the Pacific Northwest, and also in California where it is used, was probably first adapted to the use of the Italian prune industry by Prof. Ernest Wiegand of the Oregon Agricultural College at Corvallis. Back in 1919 when the prune men were booming along with prices like those of other industries, Prof. Wiegand started the work. Re-circulation of the air to increase the efficiency of the plant has been used in various parts of the country for other types of fruit evaporation work, but on a different scale and in different relationship to the grower.

First One Built in 1921

So far as is generally known, the first re-circulation drier for the Italian prune was built on the farm of C. R. Widmer of Albany, Ore., in 1921. Since that time, others have been erected in various parts of Oregon, Washington and California.

California growers are becoming more and more interested in the use of driers for their prune crop, which amounts to around 250,000,000 pounds annually. A large portion of it is sundried at the present time. One of the principal companies that owns patents on the re-circulation type of drier is the Puccinelli Dehydrating Company of Los Gatos, Calif., located right in the center of the Santa Clara prune district.

In the re-circulation drier a fan is used to either pull or push the air around in a cycle that almost has no end, so that instead of pulling in outside air and warming that up constantly, the same air is used repeatedly, and advantage taken of the warmth it retains even after passing over the fruit. Only enough of this used air is allowed to escape as to carry off the moisture that is given off by the fruit in the process of drying.

Many folks that are not accustomed to the drying of fruit might well not understand how this operation is carried out if a brief description of the regular drier is not given.

The Old Type Drier

Starting 35 or 40 years ago, the prune men of the Northwest began using what is known as the natural draft tunnel drier. In this drier, there were from three to 20 tunnels with grooves along each side on which trays of fruit would be placed. There would be from 12 to 20 or more layers of these trays, one above the other. Each tray would be about 22 inches wide and as long as the tunnel was wide, which was about 36 inches. The tunnel would slope somewhat, for two reasons. The first reason was necessity, based on the principle that warm air rises, and the second was to make easier the shoving of the trays down to the hot end as they dried out.

Beneath this tunnel, or rather set of tunnels, would be the furnace. The furnace would be under the lower end and farther away from where the trays with fresh fruit were placed in them. These furnaces have almost always been fired with wood, which is plentiful in the Pacific Northwest, and a temperature at the hot end of from 180 to 190 degrees Fahrenheit was maintained. This hot air would

pass up through the tunnel and between the layers of trays, gradually cooling off as it went, finally escaping out of a stack.

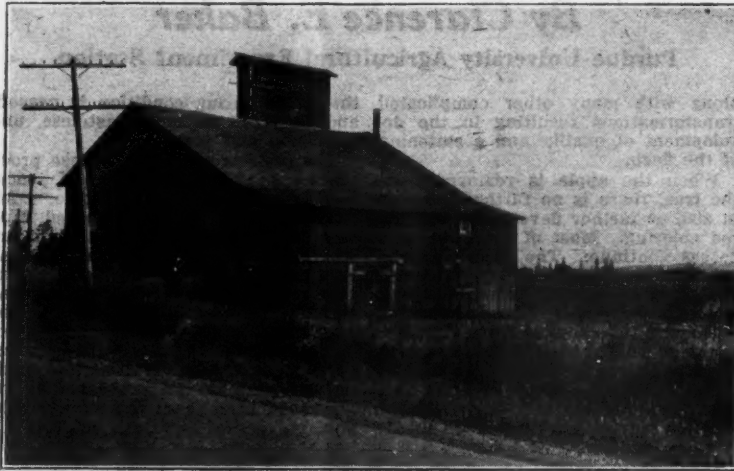
The Re-Circulation Drier

Now comes the new type of re-circulation drier. In this, the tunnels are flat, there is little or no stack, and the air is pulled or pushed back and over the pipes again. This speeds up drying and cuts the overhead.

There are three different re-circulation driers, known in western Oregon as the OAC drier (Oregon Agricultural College drier), the Puccinelli

fications developed by Prof. Wiegand of the Oregon Agricultural College. It consists of three tunnels, each one 36 inches wide and 50 feet long and high enough for 16 layers of trays.

"This drier cost us practically \$4000, and we could not have built a natural draft drier of the same capacity for any less." That is the way the Knowles feel about their investment. Here is the way they feel about the results: "Our new drier will handle 300 bushels every 24 hours and for the past season it cost us only three-quarters of a cent a pound to dry the prunes," stated the elder Mr. Knowles.



An example of the old type or natural draft drier on the J. S. Ediger farm near Dallas, Ore.

drier and the Miller drier. They are essentially the same, but the Miller and OAC driers have the fan that does the re-circulating between the cold end of the tunnel and the furnace, and the Puccinelli people have their fan just in front of the furnace, forcing the air into the tunnel. Then the Miller drier has apertures along the top of the tunnels that can be opened to permit drawing off part of the air, in transit as it were, and hurrying it back to start its trip over again.

As mentioned earlier in this article, the fall of 1926 saw several of these new driers built. After the drying

Further conversation brought out that this figure did not include such charges as depreciation and taxes. Both of the men agreed that "last year with our natural draft drier it cost us at least one and one-half cents per pound to dry our prunes," thus cutting their costs in two.

Knowles Brothers are using wire bottom trays and they feel that they are the only thing. "The fruit dries all over and comes out nice and uniform and that can't be done with the slat bottom trays in our opinion," stated Mr. Knowles.

It might be stated that the manner



A re-circulation drier of about the same capacity as the natural draft drier shown above. It is owned by C. C. Campbell of Rickreall, Ore.

season was all over and the owners had a chance to figure up their costs and drying results, I made it a point to visit some of these men who had built.

Costs Just Half with New Drier

Knowles Brothers of Independence, Ore., stated they had cut the cost of drying a pound of prunes in two through the use of their new re-circulation type of drier. Knowles Brothers have one that they built on the speci-

in which they made their saving on drying costs was in fuel and labor. They used but one-half of a cord of wood for every 100 bushels of fruit dried, whereas the old natural draft type is always expected to take a cord for every 100 bushels. That meant a saving of one and one-half cords per 24 hours at \$5 per cord. However, the cost of running the fan that re-circulates the air would have to be charged to the fuel account, as that is what saves the fuel. In the case of

Knowles Brothers, their electrical bill was \$4 per day. Then, in their new drier, one man handled the work at night where two have been required before. Other charges on each side of the account tend to change the result that these two figures alone would show.

In response to the question concerning the fruit that they dried and its quality, they agreed that it was of the best. For every 60 pounds of fresh prunes that went into the tunnel, they took out 22 pounds of dried fruit against an average for Polk county, in which they reside, of 13 pounds. That is a clear saving of four pounds to the bushel and often the difference between profit and loss. A lot of this may be accounted for in the fact that a temperature of only 160 to 165 degrees is maintained in the re-circulation drier, or almost 25 degrees less than in the old type.

Others Cut Drying Costs

C. C. Campbell of Rickreall, Ore., built one of the new driers under the Puccinelli patents at a price for the entire plant of a little over \$7000. Mr. Campbell stated this drier handled 300 bushels of fruit every 24 hours, the same as did Knowles Brothers, at a cost of three-quarters of a cent per pound of dried fruit.

In Mr. Campbell's drier, the slat bottom trays were used, but Mr. Campbell is figuring on changing over to the wire bottom tray at some time in the future. It is in this drier that the fan is located just outside of the furnace room, and through this manner of construction the height of the structure is held down, as the furnace is on the same level as the tunnels. Mr. Campbell's tunnel is 52 feet long and 24 trays high.

As a further improvement for labor saving, an oil-burning furnace is used. Mr. Campbell states, "My oil burner gives an even heat at lower labor cost, but the fuel costs me about \$10 every 24 hours for fuel oil" as compared with the \$7.50 fuel cost of Knowles Brothers, but in their case they have to have more labor to fire the cord and a half of wood. In fact, Knowles Brothers think the results favor the oil burner and they plan to install one.

In other respects, the various re-circulation driers that are spotted over western Oregon, Washington and California are largely the same. The Miller drier, mentioned earlier, is so near like the OAC drier that it need not be discussed. However, Stockton Brothers of Sheridan, Ore., have one of these built on contract with L. M. Miller of Eugene that has given excellent results the past season.

The 3,000,000 pounds of Pacific Coast prunes are only part of the dried fruit industry of the United States. There are five and one-half million pounds of other fruits dried in all parts of the country. There are raisins, figs, dates, peaches, apricots and apples dried in quantities of a million or more pounds each to which this principle of re-circulation can be applied. Out here on the Pacific Coast, they are drying their seed corn in these plants, and the principle has already been adapted to the drying of hops.

Old Driers Passing

Many of the old type driers are about on their last legs from years of usage and the action of the weather, and as they burn up through faulty construction or become too expensive to repair, they will be almost entirely replaced by the re-circulation type of driers. One example of this is the case of Wes Elliott of Dallas. Mr. Elliott owns over 100 acres of Italian prunes just outside of that town. Last fall Mr. Elliott's drier burned down during the drying season, and now he is planning with Prof. Wiegand for the construction of an OAC drier. Perhaps the day will come when this will be a common system of dehydrating other crops in all parts of the country.

Marketing the Culls

By W. W. Chenoweth
Massachusetts Agricultural College

WHAT to do with the little apple, the crooked apple, the under-colored apple and all the other apples which should not be sold as fresh fruit has long been a question that has sorely vexed the apple grower.

Someone has facetiously answered this question by advising fruit growers to quit growing apples of this kind. This would indeed be a happy solution, but unfortunately apple trees continue to produce their quota of just these kinds of apples. How far science and common practice may combine in the future to eliminate such grades of apples only the future can reveal. We must live in the present, however much we may hope or expect of the future. At present, apple trees do grow five, 10, 15 and even 25 per cent of their crop of a grade that should be kept from the general market.

In the past, fruit growers sought to reduce the unmarketable grade to the minimum by slipping into each barrel or package just as many of these low-grade apples as they thought they could get away with. And even now there are many fruit growers who have either never outgrown the habit of a by-gone generation or have acquired it by inheritance or from observation.

Low-Grade Apples Damage Business

Fruit growers in general know that when they pack low-grade apples with their better grades they are injuring not only their own business but the apple industry as well. And these are the men who are asking our experts to tell them how to eliminate these low-grade apples or, if impossible to do so under the conditions, what can be done with them, since their profitable disposal would go far toward making apple growing pay better.

The apple is peculiarly adapted to the manufacture of food products better than any other fruit we can grow. Many of its products are standard. Some are used in large quantities and some in only limited amounts—some are almost universal in their uses, others are restricted to limited areas.

Suppose we just enumerate the more common food products which may be brought upon our market today and which are made from apples. No attempt will be made to arrange these in order of their importance.

Sweet cider	Vinegar
Cider jelly	Boiled cider
Dried apples	Apple butter
Apple sauce	Canned apples

Apple jelly

There are nine distinct products—each having its uses—all of great value—some indispensable and most of which may be made from the very grades of apples the fruit grower and the consumer of apples do not want. However, the consumer and the fruit grower both want a certain amount of some of these nine products, and both should be educated to want them in increasing quantities. All of these products are to be found upon our markets. The amount consumed depends upon the price, the character of the goods, the enlightenment of the consumer.

The New England Experiment

An experiment has been working itself out in New England during the past few years which demonstrates the ability of the grower or someone not a grower to manufacture specialty products for a special market, with much profit to the manufacturer.

This experience and the experiences from other states, demonstrate clearly and conclusively that it is possible to gather together all the low-grade apples and by manufacturing processes market them at a profit.

It is true the vinegar factories, cider mills and canning factories will pay something for these grades of fruit, 15 to 20 cents per bushel for culls and \$1 to \$1.25 per barrel for the grade above culls. These are not prices commensurate with cost of pro-

duction and do not give the grower a profit.

All too frequently, the culls sold to the local cider mill add just so much to the ill repute which too many people place upon sweet cider. The average country cider mill does not discriminate between good cider stock and half rotten and scabby apples, and as a result business suffers. Sweet cider sold from such mills goes to those whose taste is perverted or to those who ferment it for drinking purposes.

As I see the problem—and as I have seen it worked out—the grower who markets his culls and low grades in some manufactured product profits

secure some of it. I have in mind an enterprising orchardist who marketed his culls as sweet cider, charging a uniform price of 50 cents per gallon. He lives about midway between two custom's mills. The operators of these two mills engaged in a cut-price war last autumn which resulted in their price going as low as 25 cents per gallon. The orchardist maintained his old price, and his customers paid it willingly because they knew the quality of the cider.

Two Successful Methods

"Once a customer always a customer" should be the cider-maker's slogan, and he can live up to this only.



A sample of the kind of fruit that goes to waste on many fruit farms

most. The question of what to manufacture, equipment, buildings, markets, etc., may be answered best as we discuss a few of the more promising of the long list of apple products already named.

Sweet Cider Easiest to Make and Sell

The product most easily manufactured and marketed as a farm factory product is sweet cider. It is by far the most profitable also. The market for sweet cider is practically unlimited if quality and prices are right.

He who equips his farm for manufacturing cider should be satisfied only with the very best—a neat, clean building with abundant supply of water, a good power press with suffi-

cient capacity, a cooling system of some sort, that is, a large ice box or tanks of ice water in order to hold the cider for a few days during hot weather, an adequate supply of paper cups, and glass jugs for marketing the cider. If a plant of this sort can be located on a well-traveled highway, the failure or success of the venture will rest entirely with the operator.

If he is courteous, if he possesses a conscience such as will not permit the use of dirty, rotten or diseased-and-insect-infested fruit, and if he will live within the spirit of the prohibition enforcement laws, and if he be industrious, keeping his place clean and attractive, he need have no fears for the success of his venture.



Samples of products that can be made from off-grade fruit

People will learn of his place, they will know of his clean, wholesome cider and they will drive miles to

lured at the kitchen door. He has torn a leaf from the milkman's book and finds that many families will consume one or two gallons of good, clean, sweet cider each week provided it is delivered at their door.

The roadside stand should be operated in connection with the cider mill. Many a gallon of cider will be sold through the silent influence of a clean, sweet-smelling cider mill and its immediate surroundings. Sweet cider sold at the stand at five cents per eight-ounce paper cup will give a gross return of \$8 to \$9 per barrel of cider apples. If sold by the gallon in glass jugs, the price ranges from \$5 to \$8 per barrel of apples. Obviously, the net profit on these apples will be a welcome sight to most fruit growers.

Do Not Sell in Quantity

The farm manufacturer who sells

his cider in quantity to whomsoever may apply for it, or who does an unrestricted customs business, will defeat his object. He will lose the trade that would have made him money, and then will acquire a trade that will cause him trouble. A cider maker, like any other business man, should have high ideals, and he should live up to them too.

Cleanliness, courtesy and honesty, are the foundations of a good cider trade. Anyone can operate a common cider mill and carry on a common business.

An enterprising cider maker operating in New Jersey allows all visitors to drink as much sweet cider as they want. He sells to customers in gallon jugs. Any surplus is benzoated and sold to hucksters. His largest day's business to date was 1000 gallons.

The cost of equipping a farm cider factory such as I have described will vary considerably. I should like to urge though that one should not be economical to the point of stinginess. Properly managed, a moderate size plant will pay for itself by the close of the second season. I know of two or three that did so the first season.

Make Your Plant Attractive and Keep It Clean

The more attractive the place is from the standpoint of sanitation, the more popular it will be with the right sort of folks. The building should be neat, painted inside and out. The premises as well as the equipment must be kept as clean as water can make them. Allow no heap of rotting pomace to accumulate within seeing or smelling distance. Urge customers to visit the plant, show them the kind of fruit you use—you may be sure they will tell others. It will cost something to equip and maintain a plant of this character, but it will pay well. The profits are sufficiently large to warrant the production of the clearest, highest quality cider possible. With anything less you are taking a chance that your next-door neighbor will win the cream of your trade.

The building should have a floor space of 300 to 600 square feet. This will give ample room for the press, apple washer, cooling tanks and other handling equipment.

What a small building of this size will cost, you can estimate more easily than I can. Many farmers will have a small building which with proper remodeling may be used, thereby reducing the cost.

The press will cost from \$300 to \$500, depending upon the size. All told, the investment may mean anything from \$500 to \$1000.

Apple Butter a Promising Product

The second product which offers possibilities as a means of marketing culls and low grades at a profit is apple butter. The low-grade fruit or the top of the culls may be washed and prepared for cooking by removing worms, etc., and then cooked in the cider made from the remainder of the culls in the proportion of four to six gallons of cider per bushel of prepared fruit. This product, after sweetening and spicing, is in my opinion the best of all manufactured apple products. It is cheap, may be eaten in quantity, and should find a place on our tables.

It can be manufactured at a cost of 30 to 40 cents per gallon for materials. If we allow an additional 35 to 40 cents per gallon for labor, overhead fuel and containers, we have our apple butter for approximately 75 cents per gallon. The price of apple butter is \$1.50 per gallon. If we consider the minimum of \$1.50 per gallon, we have a gross income of \$7 per barrel for our apples. However, our sugar, labor, fuel and containers cost approximately \$3.50 to \$4 per barrel, leaving us \$3 to \$3.50 per barrel for our culls and low grades. This is not

(Concluded on page 15)

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The Value of an Agricultural College

EVEN in this late day we hear some people express doubt now and then as to the value of agricultural colleges and experiment stations. Dean H. W. Mumford of the Illinois College of Agriculture gave some pertinent information on this subject in a talk made to the agricultural committee of the Chicago Association of Commerce when its members visited the University of Illinois.

Impartial surveys conducted by the college show that in 1919 there were 3000 acres of soybeans grown in Illinois; in 1921, 60,000 acres; and in 1926, 711,000 acres. In 1909, the state had 18,344 acres of alfalfa; in 1924, 221,000 acres; and in 1926, 260,000 acres. In 1924, 239,000 acres of sweet clover were grown, and in 1926, 517,000 acres. During these same years the college was encouraging more extensive planting of these crops.

Undoubtedly, the increase in acreage of these legumes has been an important factor in improving the soils of the state and in helping agriculture in various ways. And yet this work constituted only one small item in the complete program of the college! Can anyone doubt the value of agricultural colleges and experiment stations to a state and its communities?

Share Advantages Without Assuming Responsibilities

"ONE PARTICULAR difficulty attending all attempts at co-operative marketing lies in the attitude of the minority who decline to join. Bearing no share of the expense of the organization, they share in the advantages resulting from it. They step under the umbrella when it is raining and step out when it is clear. In a number of instances agricultural co-operative associations have gone to the wall largely as the result of the uncontrollable practices of non-members.

In Queensland, Australia, legislation has been enacted that amounts to compulsory co-operative marketing. Whenever 75 per cent of the growers of a fruit unite by contract in

a co-operative marketing association, the remaining 25 per cent of the growers are compelled to market their produce through the co-operative association whether they elect to join or not. The thing is new and we have no information as to how it is working."

Farmers Already Highly Efficient

EVERY little while some self-styled spokesman for agriculture makes the claim that farmers can solve their problems by developing greater efficiency. Apparently such persons do not know that, comparatively speaking, American farmers are already highly efficient. L. R. Clausen, president of the J. I. Case Threshing Machine Company, is one of the many men in industry who apparently understands the agricultural situation. In a speech recently delivered in Minnesota, Mr. Clausen presented statistics showing that the four per cent of the world's farmers living in the United States produce:

- 70 per cent of the world's corn
- 50 per cent of its cotton
- 50 per cent of its tobacco
- 25 per cent of its hay and oats
- 20 per cent of its wheat and flax seed
- 13 per cent of its barley
- 7 per cent of its potatoes
- 5 per cent of its sugar
- 2 per cent of its rye and rice.

Russia produces no exportable surplus, although it has a larger population than the United States and its production is about two-thirds of ours. India has 325,000,000 people and produces only half of what the United States produces. China, with its 400,000,000 people, produces not over two-thirds as much as we produce. The production of the entire British Empire is not over nine-tenths that of the United States.

Mr. Clausen did not present statistics regarding fruit, but if he had collected such statistics, we feel certain that a high degree of efficiency among American fruit growers would also have been demonstrated.

In view of such figures, who can dispute the fact that the American farmer is not already highly efficient? We admit there are still many ways in which still greater efficiency can be achieved in agriculture, and we fully approve of all efforts in this direction. At the same time, we believe there is about as much efficiency in American agriculture as in American business and industry. Go into the cities and examine the business and industrial organizations, and you will find in the majority of cases fully as great inefficiencies as are found in agriculture.

The Situation Is More Hopeful

THE MOST important occurrence during the past month from a political as well as agricultural standpoint was the statement of President Coolidge that he did not choose to run for the presidency in 1928. This statement, coupled with subsequent information given out in the newspapers, appears to make it certain that Mr. Coolidge will not run again under any circumstances.

We do not question the president's intentions. In all probability, he was sincere in his attitude toward agriculture. He apparently believed as he acted. But we believe that he has not properly understood agriculture or that he has been a victim of unfortunate influences.

Be that as it may, we are apparently going to have a new Republican candidate next year and no doubt a revised platform also. Undoubtedly, agriculture will receive consideration in the building of the platform and in the selection of the candidate, for it is unlikely that agriculture will stand by meekly and trust to luck in the matter. No doubt the Democratic party will also develop a favor-

able agricultural platform and select a candidate who will pledge himself to work in its behalf. At any rate, we hope both parties will adopt a favorable policy toward agriculture and will nominate a man who will actually carry out the mandates of the party. In that case, no matter what happens, agriculture will receive a square deal. The situation is beginning to look more hopeful.

The Political Parties and Agriculture

IN VIEW of the withdrawal of President Coolidge and the certainty that another man will be nominated by the Republican party, we feel it is a most opportune time for the party to align itself properly with reference to agriculture. With the country rolling in wealth as it is, there is no need of it keeping one great group of its citizens in virtual bondage, and there is no wisdom in doing so, from the standpoint of either the farmers or the nation at large.

Of course, some people say the agricultural relief program promoted at the last session of Congress will not work. The answer is that some of the best economists and business men in the country say it will work. Furthermore, over half of the members of Congress in both branches thought the measure meritorious enough to vote for it. In view of the measure of support which the proposition received, it seems only fair and reasonable to pass this legislation and give it a good trial. If it does not work, we can repeal it. If it develops certain defects that are capable of correction, we can remedy them by appropriate legislation. The passing of this legislation does not necessarily involve the country for all time to come.

Farm Incomes Decrease

THE GROSS earnings of farmers in 1926 were five per cent lower than in 1925, according to a recent report of the Bureau of Agricultural Economics. Expenses of production decreased about two per cent during the year and the net income after deducting expenses was about 20 per cent lower than in 1925. Farmers' average incomes for 1926 were lower than those of 1925 in all divisions of the country except the south central division.

Reports from 13,475 farm owners show decreased earnings representing a decline in the average income per farm operator available for labor, capital and management from \$922 in 1925-26 to \$853 in 1926-27. If four and one-half per cent interest is allowed as the return on the operator's net capital investment, there is a decline in the return for the farmer's labor and management from \$690 in 1925-26 to \$627 in 1926-27. Allowing the operator and his family a wage equivalent to that of hired labor, these returns represent a decline in the earnings on capital investment, including return for management, from 4.3 per cent in 1925-26 to 2.7 per cent in 1926-27.

Cash income from sales of fruits and vegetables in 1926 for the country as a whole were \$1,511,000,000, as compared with \$1,686,000,000 in 1925.

The net earnings of agriculture available for capital and management decreased from 5.2 per cent in 1925-26 to 4.2 per cent during 1926-27. According to the Treasury Department, the earnings of all corporations during 1925 averaged about 13 per cent. According to the best data available, about the same profits were made in 1926.

It is very important to note that the decreased earnings for 1926-27 were made on a declining investment. Between January, 1926, and January, 1927, the agricultural capital of the country declined from a value of \$59,712,000,000 to \$58,255,000,000. The reduction in capital valuation amounted to \$1,457,000,000.

Rambles of a Horticulturist

By C. E. Durst

A HORTICULTURIST cannot find much practical horticulture on Jackson Boulevard in Chicago and so in order that I might be able to learn what growers are thinking about and doing, I attended the recent summer meetings of the Illinois and Indiana horticultural societies. These two societies arranged their meetings this year so that both could be attended by growers on the same trip. The Illinois meeting was held at Urbana in eastern central Illinois July 26 and 27, and the Indiana meeting was held on July 28 and 29 at Turkey Run and Silverwood, about 75 miles east of Urbana.

The Inspiration of the Prairies

I made the trip from Chicago to Urbana by automobile. It is a beautiful drive down across the great fertile prairies of central Illinois during the early summer when the crops are growing and before the corn is too high to obstruct the view. The corn should have been higher at this time than it was. The best of it was just beginning to show its tassels. It was surely a rare freak of nature that sent the great crushing glaciers down over this territory ages ago, flattening it out and leaving over the surface a layer of black, rich soil that makes this country one of the garden spots of the earth. Surely nothing can prevent this area from becoming one of the richest and most populous sections in the world. Many people think that inspiring scenery can be found only in the mountains and woods and at the seaside. I appreciate fully the wonderful scenery to be found in such places, but somehow or other, I have always been able to get a great inspiration from a trip through the great productive prairie section of the Middle West in the summertime. Perhaps the fact that I am more or less utilitarian in viewpoint is responsible.

President L. M. Smith, in deciding to hold the Illinois meeting at Urbana this year, acted very wisely. A summer meeting has never before been held at Urbana. The meeting gave members a fine opportunity to look over the comparatively new grounds of the Department of Horticulture that are now beginning to reach a fine condition since the department was moved several years ago. Also, a better time could not have been found to visit the Dunlap orchards four miles to the south.

A Strong Department of Horticulture

The Department of Horticulture of the University of Illinois is one of the strong departments of its kind in the country. It has been built up largely as the result of the vision and hard work of Prof. J. C. Blair, head of the department. He deserves great credit for the same, especially in view of the conditions and influences under which he has built the department.

In a speech made by Prof. Blair out among the orchard trees, he stated that the department was organized 31 years ago. Due to the growth of the university, the department grounds have been moved three times. The

experimental and demonstration projects are now located at considerable distance from the main part of the university on ground that will not likely be disturbed for some time. The department has 480 acres of land. There are 33 men on the teaching and experimental staff, and 100 to 120 men are required to operate the

ber of offices, classrooms and fire-proof storage vaults.

The Plant Breeding Work

One of the most extensive experimental projects is the plant breeding work, which has been conducted by Prof. C. S. Crandall. A large part of the grounds is occupied by the 30,922

several new varieties of real promise have been developed.

The Variety Tests

The variety tests and other experimental fruit projects were explained by Dr. M. J. Dorsey, Dr. W. A. Ruth, V. W. Kelly and others. The variety tests attracted particular interest. Among these are 100 varieties of apples, 42 of peaches, 27 of cherries, 66 of grapes, 26 of red raspberries, 29 of black raspberries, 20 of blackberries, 24 of gooseberries, 25 of currants and 75 of strawberries.

In these tests many varieties which have not been extensively grown are proving worth while. It has been found that a number of varieties of sweet cherries, for instance, will produce a crop in about three years out of five when kept properly sprayed. The variety tests have also clarified the situation with reference to plums and have shown that such varieties as Abundance, Burbank, De Soto, Pottawattamie, Red June, Wild Goose, Green Gage and Damson are adapted for planting in the state. Among newly introduced varieties which offer marked promise are the Latham red raspberry, the Quillen black raspberry, the Royal (purple) raspberry, the Poorman gooseberry and the Premier strawberry. The department has recently issued a variety list for northern, central and southern Illinois as a result of these tests. Recommendations are made from the standpoint of both general and roadside marketing. Growers in Illinois and nearby states who intend to plant fruit would do well to get a copy of these recommendations.

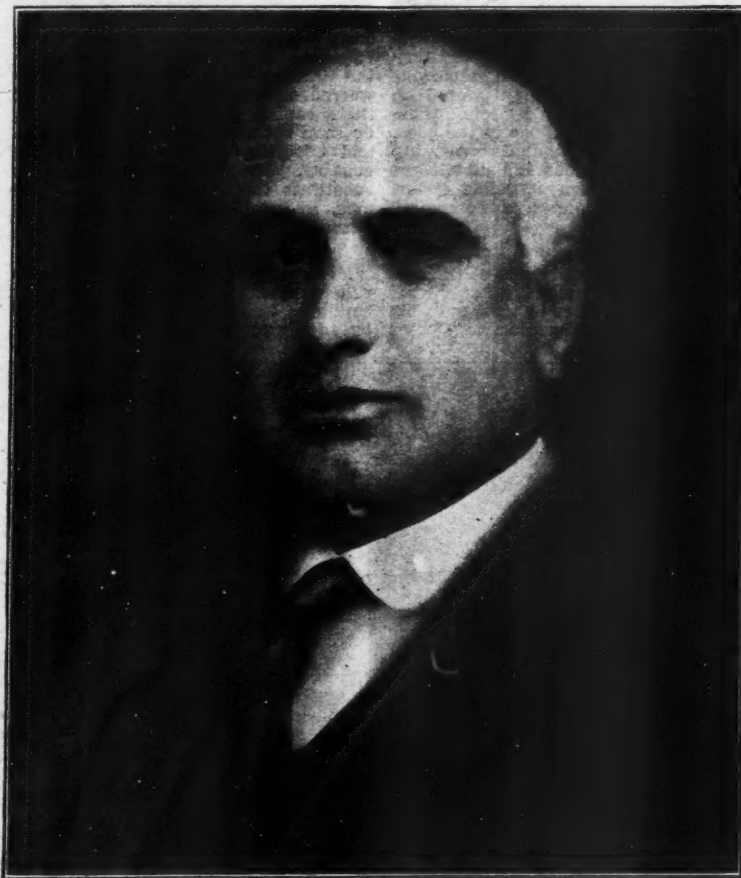
Pruning Tests and Demonstrations

The department is also conducting apple pruning experiments. These were explained by V. W. Kelly. Demonstrations in pruning both young and old trees were given by Dr. W. A. Ruth. He recommends shaping the tree while young and pruning it only sufficiently in later years to direct its growth and to keep the top fairly open. L. W. English and S. C. Chandler of the Natural History Survey explained the spraying and banding tests for codling moth control.

At an evening meeting, Dr. W. P. Flint of the State Natural History Survey, gave a summary of the insect situation in Illinois during the present season and Dr. H. W. Anderson of the Department of Horticulture did the same with reference to plant diseases. Ralph W. Rees, president of the American Pomological Society, presented an outline of the fruit prospects of the country, and John W. Gorbey, secretary of Apples for Health, Inc., gave a report on the apple advertising program. Practical lectures on landscape gardening were given by Prof. Irving L. Peterson and Prof. O. G. Schaffer.

On the second day, a visit was made to the Dunlap orchards at Savoy, Ill., four miles south of the university. The story of the Dunlap orchards and operations will be presented in a

(Concluded on page 14)



Prof. J. C. Blair, who has been head of the Department of Horticulture, University of Illinois, for 31 years. Due to his vision and efforts, the university has developed one of the strongest departments of horticulture in the country.

orchards, gardens and field work. At present, 48 courses in horticulture are offered and about 400 students register in horticultural courses each year. There are 71 demonstration projects which are used for instructional work, and 47 definite experiments are being conducted.

The new Horticultural Building, located on a commanding spot at the north end of the grounds, is the center of operations for the field work. It contains extensive storage space for machinery and supplies. There are 14 cold storage rooms for storage experiments. There is a by-products plant, a canning plant and a spray material plant. There are also a num-

ber of offices, classrooms and fire-proof storage vaults. One of the most extensive experimental projects is the plant breeding work, which has been conducted by Prof. C. S. Crandall. A large part of the grounds is occupied by the 30,922 tree seedlings which are now being grown to the fruiting condition. These are only a part of the practically countless number of plants discarded in the early stages. The objects have been to discover all information possible pertaining to inheritance in fruits and to develop new varieties of merit if possible. Detailed records are being kept. Prof. Crandall has already issued several bulletins, and a recent one on apple breeding, which is available on request, is the largest bulletin that has ever been put out by the university. The department is not ready as yet to make definite announcements, but I understand that



New field laboratory of the Department of Horticulture, University of Illinois



General view of one of the young apple orchards of Coffing Brothers, Silverwood, Ind.

South of the Rio Grande

Historical Factors Leading Up to Present Situation

By C. E. Durst

POLITICAL and economical conditions are very much disturbed in Mexico at the present time. Life is not very safe, especially among politicians. The people lack confidence in each other and in things in general. They blindly follow their various leaders. Numerous factions exist, some of which are headed by leaders with little education and not very much clear understanding. Graft, corruption and crime are common. The land is mainly held in large estates, although progress is being made in breaking these up. Ignorance abounds, although educational progress is being made.

Aztecs Were a Proud Race

The reasons for the present situation in Mexico are very deep-seated. One can understand them only when he takes into account some of the important facts in Mexican history during the past four centuries. When Cortez reached Mexico in 1519, the Aztecs were in power. Their capitol occupied a small spot of land now included in Mexico City, which was then an island near the end of a large inland lake (since drained) and was

connected with the mainland by three artificially constructed causeways. They had conquered many of the tribes about and were a proud nation. Their buildings and civilization showed high development. Their calendar stone, still to be seen in the museum at Mexico City, portrays a system of time keeping that is said to be fully equal to the Gregorian system. They worshiped idols. Mystery and superstition played an important part in their lives. They offered up their war prisoners by the thousands as human sacrifices to the gods. There was no individual ownership of land. The various Indian villages held fairly large tracts, called ejidos, which were tended on a communal basis.

The Treachery of Cortez

Cortez treacherously gained the confidence of Montezuma, the Aztec leader, and induced him to turn over his authority to the Spaniards. Cortez

at once importuned the natives to make up a gigantic offering of gold and other valuables for the white god across the water. Some of this reached Europe, but most of it was divided among Cortez and his soldiers. Montezuma was virtually kept in captivity and continued to be a slave to the intellect of Cortez until his early death. Soon the Aztecs began to suspect Cortez, and, headed by the brother of Montezuma, they warred on him and drove him out of their capitol temporarily. However, he soon returned with reinforcements and effected the subjugation of the country. He at once proceeded to substitute the Spanish language, customs, and religion, for those of the Aztecs.

The Spanish Viceroys

Mexico continued under Spanish rule until 1824. During those three centuries 63 viceroys, each appointed by the Spanish king, ruled over the

country. Each left much richer than he came. Each encouraged the church to establish itself in the various communities and helped it with grants of lands and other favors. Great landed estates, owned principally by Spaniards, were permitted to develop. The church owned one-fourth of the land area in 1824, and practically all of the remainder was held in about 5000 estates. The Aztecs were kept in ignorance, poverty and superstition for the most part. It is said that the hate, greed and extravagance of the ruling classes of Mexico today date back to the reign of the Spanish viceroys.

Naturally, the Aztecs were not content. Occasional revolutions were stamped out. After Spain separated the church and state within its borders, the clerical leaders in Mexico led a movement which freed that country from Spain in 1824. The constitution of 1824 made the Catholic faith the official religion of the country. The clergy were accountable only to ecclesiastical courts. Between this time and 1857, the church grew in power and wealth. The Mex-

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The cathedral of Mexico City, which is the most elaborate in the western hemisphere. It was built on the site of the Great Teocalli or temple of the Aztecs. It was started in 1573 and completed in 1791 and cost about \$2,000,000.



A view in the Xochimilco gardens, the "Venice" of Mexico. These gardens are located near Mexico City and consist of a network of canals cut through a shallow lake. Flowers and vegetables grow luxuriantly on the banks between the canals.

Middle Georgia Peach Situation in 1927

By H. P. Stuckey

Georgia Experiment Station

IT WAS equally as difficult to forecast the behavior of the peach crop in middle Georgia in 1927 as it was to forecast the weather. Even the experienced growers were kept guessing until the crop was almost ready to be harvested.

The Weather

In the outset, the weather fluctuated rapidly and often the rises or falls in temperature were great.

Starting with a minimum temperature of 11 degrees Fahrenheit on January 16, the thermometer climbed rapidly, reaching a maximum temperature of 75 degrees Fahrenheit on the twentieth of the same month.

February was warm and Indian summers came frequently. The thermometer dipped to freezing only once, on February 21, when it registered two degrees below freezing. Prior to this, the temperature had been high and it shot back up quickly after this brief dip. Consequently, the whole category of peach varieties, including some 25 or 30 varieties at the Georgia Experiment Station, in addition to those in commercial orchards, burst into bloom. Practically all varieties, late flowering sorts as well as the early bloomers, sent out their crop of blossoms between February 19 and 26, even though there were some latent buds which produced flowers a few weeks later.

March was somewhat cooler with

temperatures well below the freezing point on the third and fourth, although the trees had blossomed out several days before. At this time much cold

injury was experienced. About three weeks later, March 25 to be exact, a white frost came and took another toll, even though the official thermom-



This lot of Elberta peach trees received a fertilizer mixture containing 12 per cent of nitrogen and was delayed two weeks in maturing its crop.

eter registered a little above the freezing point of 32 degrees.

Spring opened early and the peaches, although the crop had been reduced by cold, got an early start into growth. A few growers made their early spray applications so long in advance of the fourth and last, which was planned to be put on about four weeks in advance of the ripening date, that they seriously considered slipping in an extra spray. Those who waited, however, until about June 20, the normal date for giving Elbertas and Hales their last spray, were surprised to find that they had overslept their time, as these varieties had already begun to color and the harvest season proved to be less than a week off. Consequently, many orchards missed their fourth application of spray in 1927.

Varieties Ripen Early

Practically all varieties of peaches ripened from two to four weeks ahead of the normal season in the lower Piedmont section of Georgia in 1927. Further south in the state, in the Fort Valley and Marshallville sections, other interesting phenomena occurred. In some instances Hiley ripened ahead of Carman, while normally the Carman is a week earlier than the Hiley. Another interesting occurrence was that the Carman ripened over a pe-

(Concluded on page 22)

September, 1927

Monthly Market Review

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on August 10: "Prospects for fruit production declined further during July, and the August report indicated lighter crops of tree fruits than in any recent season. Total production of 128,000,000 bushels of apples would be only about half of last year's big crop. Most of the reduction since July 1 was due to continued dropping and to loss from scab and aphids. The commercial apple crop is now estimated at 24,830,000 barrels, of which approximately 12,000,000 are in the West and 13,000,000 in eastern and central producing sections. Last season the commercial apple crop exceeded 39,000,000 barrels.

"Peaches also declined slightly and the August forecast was less than 45,000,000 bushels, or about two-thirds of the 1926 crop. Pears seem to have improved a little. Latest estimate indicates 18,000,000 bushels of pears, compared with 25,600,000 last season. Indicated production of grapes is 2,540,000 tons, an increase of nearly 200,000 over last year and 440,000 tons above the five-year average for this fruit. The August 1 condition of California oranges was 67 per cent of normal, compared with 82 per cent a year ago. Corresponding figures for lemons were 64 and 92 per cent. Florida oranges showed a condition of 65 per cent and grapefruit 60 per cent in August, as against 87 and 83 per cent respectively at this time last season.

Apple Market Outlook

"Apple growers should make money this year. Those who are fortunate enough to have any considerable quantity of good fruit may recoup some of the losses of last season, when size of the commercial apple crop broke all records. Prices of early varieties advanced during the past month and in some cases they doubled. Market values are fully twice as high as a year ago, shipments are much later and lighter, and the stage is set for a good export season. Increased purchasing power in continental Europe, particularly in Germany, makes that potential outlet an attractive one. Trade reports indicate that Germany is in the market for such by-products as apple waste, as well as for the fresh fruit. Exports to Germany more than doubled last year and were equivalent to nearly 400,000 barrels, compared with 1500 barrels in 1921. Total exports of apples in 1926 reached the high equivalent of 5,400,000 barrels.

"After several years of poor prices, growers of Gravensteins, in the Sebastopol district of California, feel greatly encouraged over this season's prospects. Quality of the crop is the best for several seasons and the local association had set a price range of \$2-\$2.25 per box at the opening of the deal. Shipments were delayed, but had become active in August. Between 800 and 1000 cars are expected, compared with more than 1500 last year.

"Lighter production in all parts of the country is reflected in shipment reports. By mid-August, total movement from western states was scarcely more than one-third of last year's early output, while eastern and central shipping sections lacked about 8000 cars, or one-third, of equaling the corresponding record of 1926. Part of the difference in the West is due to a late season. Best packs of eastern fruit were jobbing at \$2-\$3 per bushel basket.

"An interesting sidelight on the situation was a recent inquiry from an important user of cull apples as to where he could purchase the desired quantity of culls this year. Last season, there was an abundance of fruit of all classes and grades, but in 1927 even culls may be in demand. This does not mean, however, that there should be any laxity in grading and packing fruit this season. A lot of poor apples sent to market may ruin price prospects, in spite of a short crop and increased demand.

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Grape Marketing Problems

"Marketing a crop worth at least \$65,000,000, mostly within three months' time, is the problem confronting grape growers, especially those in California. Effective distribution of 80,000 carloads of fresh grapes, and the utilization of thousands of additional tons by drying, juice-making or other processes, is demanding the attention of experts this year. Renewed co-operative action of growers and shippers, both East and West, may help to solve the problem; the clearing house plan also is being given a fair trial in California. Results of the present season will be watched with interest.

"Grapes rank next only to potatoes and apples in volume of production

and shipments, among all the leading fruits and vegetables. The Bureau of Agricultural Economics recently issued a special mimeographed report on 'The Grape Market Outlook,' in which the situation is analyzed. (Copies can be obtained from Washington.) This report shows that shipments of grapes during the past 10 years have trebled, while total production has doubled. Demand for western juice stock has been extremely active, particularly in the cities with large foreign population. Ten important markets last year took 60 per cent of all the grape shipments. New York alone has been receiving nearly one-fourth the total carlot movement. As a result of heavy drying of grapes in California last season and probable abundance of raisins

on hand, it seems likely that shipments of fresh grapes will be increased this fall. The lighter crop in states outside of California should encourage a wider distribution of the western product. Less competition also will be felt from tree fruits. Western grapes matured too early in 1926, and the present season is more normal in that respect.

High Prices for Peaches

"A sharp contrast is apparent this year in eastern and western peach districts. About half the total crop is west of the Rocky Mountains. While California canners and growers were deadlocked for quite a while in their attempt to reach a satisfactory price,

(Concluded on page 13)



For heavy duty—the power which serves industry is now available to many farms.

Electricity can give the farmer much now—and more later

THE FARMER wants new equipment. His own may be "pretty fair," but a practical sense shows him how much more could be done with better. He wants it; but he first wants to make sure.

Users of farm-electrical equipment today are reporting good results. But the development of electrical machinery for the farm has just begun. Electrical manufacturers, aided by farm organizations and agricultural schools, will continue to make better machinery, improve the old and work out and test new uses for electricity. What discoveries in farm economy may lie ahead!

The electrical industry is bring-

ing all the weight of its industrial experience to the service of the farmer. With its vast system of interconnecting lines, it was never better prepared to serve. The farmer wants not only light but every form of power that will make life on the farm as comfortable and convenient as in the city. A rural civilization will arise, worthy in every way of the farmer's dream.

Groups of farmers who can assure their local power company of a sufficient demand for current to make a new line self-supporting will find the company glad to cooperate. Ask your power company for information.

The Committee on Relation of Electricity to Agriculture is composed of economists and engineers representing the U. S. Departments of Agriculture, Commerce and the Interior, American Farm Bureau Federation, National Grange, American Society of Agricultural Engineers, Individual Plant Manufacturers, General Federation of Women's Clubs, American Home Economics Association, National Association of Farm Equipment Manufacturers, and the National Electric Light Association.

NATIONAL ELECTRIC LIGHT ASSOCIATION

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Apple Survey in Shenandoah-Cumberland Region

AN APPLE SURVEY is being made in Pennsylvania, Virginia and West Virginia by the United States Department of Agriculture, the West Virginia College of Agriculture, the Virginia Agricultural Experiment Station and the Pennsylvania State College.

A count is being taken of the apple trees by varieties and age. All of the price data available will be collected

and tabulated. A study of retail marketing in the district is also being made, including an investigation of margins taken by retail merchants, jobbers, railroads and wholesalers. Data will also be taken regarding cooperative handling of products.

This survey is part of a national survey which is being made by the Department of Agriculture in co-operation with the various states. After studies in all of the important apple growing sections have been made, the data will be summarized and analyzed.

The Editor's Mail Box

Use Paradichlorobenzene for Peach Borers

Editor, AMERICAN FRUIT GROWER MAGAZINE: I have a young peach orchard in which many trees have a yellow appearance and are making a weak growth. Some trees have died. My neighbors tell me the trees must be infested with borers. I have never treated them for this insect. Will you advise me as to the best method for controlling them?—D. E. D., Arkansas.

ANSWER: It is quite likely that borers have been responsible for the damage to your peach trees. They cause a condition like that you describe.

There is very little you can do at this season of the year to stop the insects, except to dig them out with a sharp knife. If you want to do this, dig away the earth from the crowns for a couple of inches, scrape the bark clean and inspect it carefully for holes, tunnels, dead bark and other evidences of the borers. When you find signs of them, dig the borers out. Do no more damage to the trees than necessary. A small wire will help you to kill the borers in deep tunnels. It is a good thing to paint the raw surfaces with white lead paint. Be careful to get none of this over the live bark.

The best method of combating the borers is to treat them with paradichlorobenzene. In your section of the country, the treatment should be applied about September 25 to October 10. Farther north, the treatment should be applied a little earlier, and further south it should be applied somewhat later. Fall applications give the best results. If spring applications are employed, they should be made in May.

In some sections of the country, it is claimed that the P. D. B. injures trees three years old and under. In other sections, no injury appears to follow the use of the material on young trees.

If you use the material on trees three years old and under, use one-half ounce for each tree; for trees from three to five years old, use three-fourths ounce per tree; for trees six years old and older, use one ounce to the tree; and for large old trees, use one and one-fourth ounces for each tree.

In preparing the trees for treatment, first remove all grass and weeds from around the trunks with a spade or hoe. Also remove all loose bark and gum from the trees. Pulverize the P. D. B. and apply it in a narrow ring one inch wide and about one or two inches from the base of the trees. Do not place the material in contact with the tree. Carefully cover the material with pulverized soil to a height of six to eight inches above the surface. Compact the soil with the back of a hoe or spade.

In order to minimize the danger of injury, tear down the mounds on trees three years old and under after three weeks; on trees three to five years old tear down the mounds after four weeks; and in the case of older trees, tear down the mounds six weeks after application.

The P. D. B. treatment has been highly successful in all sections of the country, and if you use this method and follow the directions carefully, I am sure you will have no trouble in controlling the insect satisfactorily.

Worms in Plums

Editor, AMERICAN FRUIT GROWER MAGAZINE: I have some Green Gage plum trees which always set a full crop, but I have never been able to get any ripe plums, for they all drop off before ripening. A worm seems to be the cause. Can you tell me if there is any way to prevent this damage?—A. C. S., Illinois.

ANSWER: I rather think that it is curculio which is causing your damage to Green Gage plums. It is quite common for fruit which is attacked by this insect to fall.

The best way to control curculio is

to keep the plums well covered with arsenate of lead, beginning at about the time the husks are falling and continuing the applications at intervals of 10 days to two weeks until a short time before ripening takes place.

Poisoning Poultry with Spray Material

Editor, AMERICAN FRUIT GROWER MAGAZINE: Apparently it is not wise for a farmer to use a sprayed orchard as a run for his chickens because of the danger of poisoning. I operate a power sprayer for a ring of farm orchards and I found it impossible to give one orchard a much needed spray because the trees were growing in the owner's brooder house yard where lettuce seeded for young chicks was just coming up.

Is there any danger in letting chicks run in sprayed orchards? If so, how long must one wait after spraying with lime-sulphur and arsenate of lead to turn in the chickens? No cases of such poisoning have come under my observation. Do you have any reports of such poisoning?—W. S. C., Iowa.

ANSWER: You have raised a very interesting question. It would seem that much damage would be done to poultry through poisoning of grass and other plants which they eat. However, I have never heard of poisoning of poultry in this way.

Ralston R. Hannas, who writes our poultry department, advises me that in poultry circles it is considered advisable to keep poultry away from plants and grass in an orchard for two or three days after the spraying is done. Rains and dews and the growth made by the grass and plants will make it safe to turn in the poultry after two or three days. It is always good policy to apply just as little poison as possible to plants to which poultry has access.

Origin of Latham Raspberry

Editor, AMERICAN FRUIT GROWER MAGAZINE: Will you please tell me what you can of the origin of the Latham raspberry. Was it found by chance or is it the result of crossing of known parents?

ANSWER: The Latham raspberry was developed by the Minnesota Agricultural Experiment Station as a result of systematic crossing. It is a seedling from a cross between King and Loudon. In the test plots, it was known as Minnesota No. 4. The first plants were set out in a small way for trial purposes in 1914. The variety was named Latham in 1920 in honor of A. W. Latham, who was secretary of the Minnesota State Horticultural Society for 29 years.

The variety seems to be rapidly displacing all over varieties in Minnesota, Wisconsin and the Dakotas. The canes are quite hardy, vigorous and productive. The fruit is large, firm and of good quality. It has a long ripening period.

Combating Apple Borers

Editor, AMERICAN FRUIT GROWER MAGAZINE: I have a young apple orchard nine years old in which the leaves of many trees have become small, sickly and yellow during the last year or two. On investigation I find that these weakened trees are girdled or just below the surface of the ground. I thought at first that mice might be responsible, but in many trees I find holes about the size of buckshot. I presume that borers are responsible. Will you tell me what is causing the damage and how to treat for it?—B. G. W., Illinois.

ANSWER: I believe your young apple trees are infested with borers. These hatch from eggs that are laid by moths in the spring. In a short time they work their way into the bark and sapwood. Here the worms live for about two years. They then form pupae and later transform to adults. The life cycle requires about three years.

Unfortunately, the paradichlorobenzene treatment, which has been so successful with the peach borer, has not been found suited for controlling the apple borer. The best method of

for September, 1927

control consists in digging out the borers. This may be done at any time of the year, but probably the best time is during October. At this time the worms which have hatched from the spring laid eggs are large enough to be found easily and they have not yet bored deeply into the heartwood as a rule.

In digging for borers, first remove the soil from about the tree to a depth of two to three inches. Scrape the bark clean with a knife and look closely for entrances to tunnels, discolored bark and sawdust exudations. If a borer is present, dig until you get it, taking care to injure the tree no more than necessary. A small wire will often be found useful in reaching the borers in deep tunnels. All wounds should be coated with white lead paint. Take care to get none of this over the live bark.

In some cases it is a good thing to prune back badly damaged trees in order to reduce transpiration. The following spring it is advisable to give the trees an application of nitrate of soda, sulphate of ammonia or manure and to cultivate during the early part of the season to stimulate a good growth.

Use Budding to Maintain the Variety

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I found by the roadside a seedling peach tree which is bearing a rather fine peach. Will this tree come true from seed or will the fact that some of its ancestors went through the process of budding destroy the probability of this?—E. B. C., Oklahoma.

ANSWER: In all probability your seedling peach tree will not come true from the seed. Very few peach varieties will do this, and while some of them seem to do it, it is a question whether any of them come entirely true from seed.

The fact that the ancestors of a tree grew through the process of budding has no influence on the ability of a tree to come true from seed or not to come true from seed. Budding simply consists in taking a small piece of tissue of a tree and transplanting it onto another root. The root simply furnishes the food and the tree grows into a top of the same variety as the tree from which the budding tissue was taken, with the exception that a top is sometimes influenced in bearing and in other ways by the root upon which it happens to be worked. However, this effect lasts only through the life of the tree. The hereditary make-up of the tissue is not permanently changed by the root upon which the tree is grafted or budded. If you want to preserve the variety of your seedling, I suggest that you propagate it. In the case of peaches, budding is most commonly used.

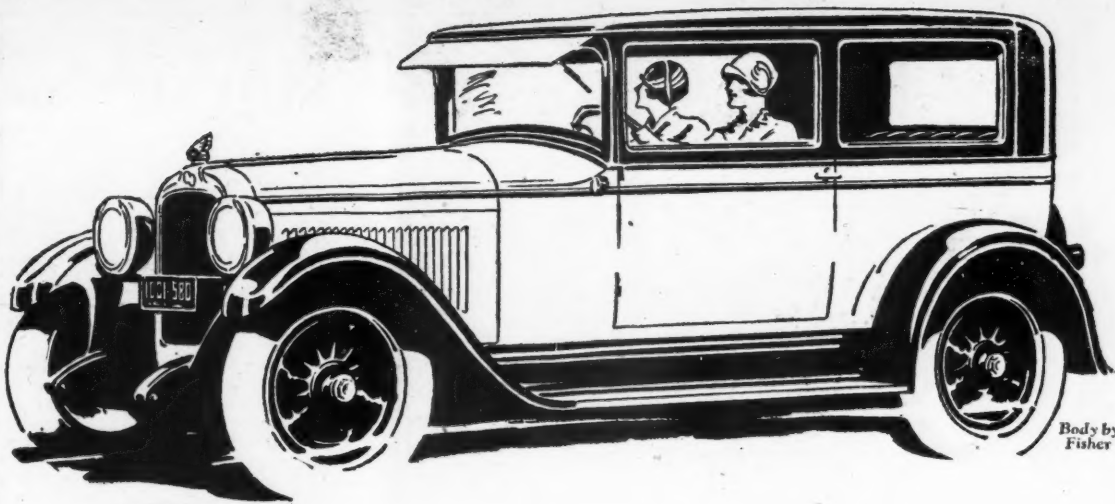
Clean Cider for Home Use

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I want to make some cider for home use and am very anxious to obtain a high grade product. I shall appreciate any suggestions you care to send me.—J. W. R., Ohio.

ANSWER: In making cider for home use, one is particularly anxious, of course, to get a clean product. I would suggest that you sort the apples very carefully and throw out all fruits which are diseased or rotted. The remainder should be washed carefully and all bad spots should be cut out.

If you want to keep the cider for some time, it will be well to add benzoate of soda at the rate of 0.1 of one per cent by weight or to place the cider in cold storage immediately after it is made. If the cider is later sold, a statement must accompany it that benzoate of soda is contained.

For home use, it is very desirable to retain the natural flavor. When cider is boiled, the flavor is changed. You can retain the flavor by heating the cider to 150 to 175 degrees Fahrenheit for 20 minutes and bottling and sealing it while hot. For very acid cider, heating to 150 to 160 degrees is sufficient, but for cider from milder varieties of apples, you should heat to 165 to 175 degrees. Such cider will hold the



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Although the original Pontiac Six was such a revolutionary value that it set a world record in the number of buyers it won during its first year—

—the Pontiac Six you buy today is even smoother in operation, even more sparing in the attention it requires, even more luxurious and

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Yet it sells for less than ever—the result of price reductions made possible by the economies of increased volume production in the world's newest and finest motor car plant.

Unless you have actually driven today's Pontiac Six—actually studied the richness of its Fisher bodies and its exclusive features of modern design—you cannot know what thrilling power and smoothness, what thorough road mastery, and what enduring satisfaction can now be obtained in a six at \$745!



New lower prices on all passenger car body types.
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Sport Roadster	\$745	Landau Sedan	\$845
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The New Oakland All-American Six, \$1045 to \$1265. All prices at factory. Delivered prices include minimum handling charges. Easy to pay on the General Motors Time Payment Plan.

OAKLAND MOTOR CAR COMPANY, PONTIAC, MICHIGAN

The New and Finer PONTIAC SIX



natural flavor and will keep satisfactorily if stored in a cool room.

A Correction

IN THE August issue on page 10 it was suggested to J. H. L. that he use 1-10 lime-sulphur or 2-4-50 Bordeaux for spraying young raspberry canes for anthracnose. A 1-10 lime-sulphur would damage raspberries in the summertime. A 1-40 or 1-50 solution should be used.

Control for Bindweed Found

A VERY important announcement was recently made by the Kansas Agricultural Experiment Station. The

bindweed or morning glory, one of the most serious weed pests of the nation, promises to be brought under control as a result of experiments conducted by the college.

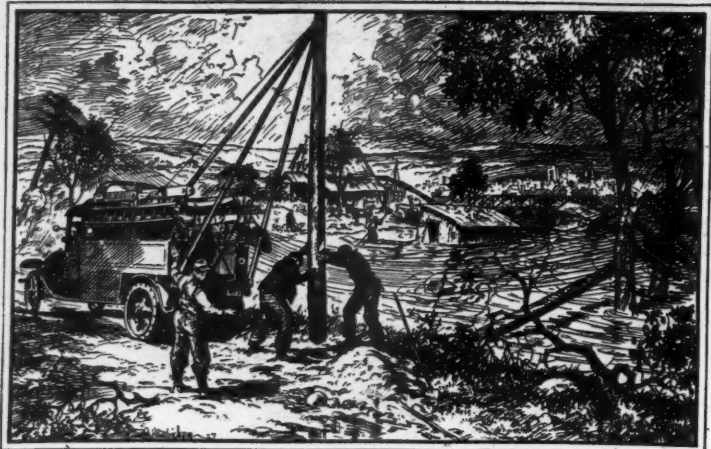
Of 12 chemical treatments tried out by the station, two of them brought about the complete eradication of the weed, it is reported. Both a 12.5 and 25 per cent solution of sodium chlorate proved effective, and two applications proved fatal to the weeds. In the case of all other treatments, the weed showed an increase in number of vines appearing the following spring.

The experiments are being repeated during the present season. The station hopes to be able to announce definite data on cost and effectiveness

of eradication by spraying with power sprayers of wide spraying width now on the market.

Mrs. Edith Rose

MRS. EDITH ROSE of Mitchell, Ind., who was one of a few successful women fruit growers of Indiana, died on July 20. Since the death of her husband, Paul Rose, in 1913, she has been managing over 300 acres of fruit in Michigan and Indiana. The Michigan properties were eventually sold, and in recent years she gave all her attention to the orchards at Mitchell. She was an active member of both the Michigan and Indiana horticultural societies and took a prominent part in all activities for the betterment of the community.



All for One

An Advertisement of
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A SLEET storm descends, carrying down trees and wires. A wind turns outlaw and blows down a pole line. Or some swollen river rampages through a circuit of destruction.

But wherever angry nature attacks the Bell Telephone System there are repairmen trained to meet the emergency, and everywhere trained in the same schools to the use of the same efficient tools. Supplies of surplus equipment and materials are kept at strategic points whence they may be rushed by train or truck to the devastated area.

Throughout the Bell

System, all construction and practice are standard, so that men and supplies, when necessary, may be sent from one state or company to another.

There are twenty-five Bell Companies, but only one Bell aim and ideal; stated by President Walter S. Gifford as:

"A telephone service for this nation, so far as humanly possible free from imperfections, errors and delays, and enabling anyone anywhere at any time to pick up a telephone and talk to anyone else anywhere else in this country, clearly, quickly and at a reasonable cost."

CIDER It's easy to keep Cider sweet by using Benzoate of Soda. Inexpensive and simple to use. Full directions in each package. Price: 1 lb., 85c; 2 lbs., \$1.50; 5 lbs., \$3.25.

CARUS CHEMICAL COMPANY
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Wire Mesh Fruit Tree Guards

Superior Brand Galvanized-Wire Guards will protect your fruit trees against damage from rabbits, mice and other rodents. Complete protection costs but a few cents a tree. Let us know your requirements and we will ship direct from factory. Folder A upon request.

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Most exclusive Hotel.
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All Rooms with Bath
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In Picnic Days—

IN picnic days tasty peanut butter sandwiches are always in demand. And they are never more appetizing or nourishing than when made with pure Beech-Nut Peanut Butter. Young and old find the rich nutty flavor equally tempting.

Beech-Nut
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Markets and Marketing



FOR SEVERAL YEARS the Pacific Northwest apple interests have been trying to organize the industry for the purpose of bringing about more effective distribution and merchandising methods. The idea was revived this spring by the agricultural department of the Portland Chamber of Commerce under the leadership of R. H. Kipp. While it is not definitely determined at this writing whether or not the plan will be put into operation this season, important progress has been made.

The viewpoint has been taken in the development of this program that three elements must and should have consideration—the growers, the shippers and the business interests depending on the industry.

After preliminary meetings of explanation were held early this spring in all of the important producing districts in Washington, Oregon and Idaho, a general meeting was held at Seattle. A unanimous vote in favor of organization was passed.

The shippers of each district formed local organizations and these were later federated into the Northwest Fruit Shippers' Council, which is an all-Northwest shippers' organization including co-operative as well as independent distributors.

Growers who were organized co-operatively found it unnecessary to take any steps whatever. For the unorganized growers, a general committee of 11 was appointed at the Seattle meeting to encourage the formation of local organizations of 50-car output. Later the amount was changed to 100 cars. These organizations of formerly independent growers may market through any dealer or association which is a member of the shippers' council. It was practically necessary that some plan be evolved for permitting these growers to continue to sell through private agencies because of financial obligations, advances made to them, etc.

There is not to be one central sales organization for the shippers' council. Instead, the central organization is to be primarily a bureau for the collection and dissemination of trustworthy information on a confidential basis. The United States Department of Agriculture has virtually agreed to furnish a man to take charge of this part of the work. He will receive from each member of the shippers' council daily reports of his sales and distributions. A government official will then assemble this information and analyze and distribute it among the various member shippers and grower units. He will not, however, disclose the operations of any shipper to others. There are certain agreements between members of the council which all are under contract to observe.

At this writing, the shippers' organization has been effected, but the growers have not completed their organizations as yet, and it cannot definitely be stated whether or not the plan will go into effect this fall.

THE RECENT hearing held at Washington with reference to the Mexican orange worm brought out varied expressions. R. E. McDonald, state entomologist of Texas, proposed that a "host free" period of six or eight months be established to protect the grapefruit crop of the Rio Grande Valley, starting about March 1, after which date no mature grapefruit would be allowed to remain on the trees until about November 1. All other known host fruits, including sour oranges, peaches, guavas and

figs, would also be removed from the trees and destroyed. These methods, together with continuous orchard inspection, should, in the opinion of Mr. McDonald, reduce the insect to very small proportions and perhaps eliminate the pest entirely.

California representatives recommended eradication of the pest by allowing no grapefruit crop to mature during the season of 1927-28. Under this plan, growers would be reimbursed for the loss of their crop.

Other representatives felt that the pest would be killed sooner or later in the natural course of events by frosts and freezes.

Within the last two months the Federal Horticultural Board, in cooperation with the Texas authorities, has entirely cleaned up all hang-over grapefruit and destroyed it. The same steps were taken on the Mexican side of the valley opposite Brownsville, under the hearty co-operation of the Mexican authorities and citizens.

THE ADVANTAGES of co-operation are shown by the fact that the traffic department of the California Fruit Growers' Exchange has obtained a reduction in freight rates of 40 cents per 100 pounds of citrate of lime from Corona to Atlantic seaboard points, effective June 15. The old rate was \$1.20. Thus a 33 1/3 per cent reduction was obtained.

The Corona by-product plant has been manufacturing 28,000 pounds of citrate of lime daily, and converted over 4000 cars of lemons into this product before July 1 this season.

The saving of \$8 per ton in freight rates to New York will therefore be no small item to the California Fruit Growers' Exchange and its 10,500 members.

THE FRUIT GROWERS' Supply Company of California has recently contracted for 100,000 orchard heaters to be distributed among its members.

THE WENATCHEE District Co-operative Association of Washington and the Southern Oregon Sales, Inc., of Medford, Ore., recently entered into an agreement whereby a New York sales office will be conducted jointly.

THE YAKIMA Valley Grape Growers' Union of Grand View, Wash., has completed its third year of operation. The total sales for the first year amounted to \$45,894. Nearly 90 per cent of this was paid to the producers. Net sales for the second and third years were \$100,831 and \$62,198, respectively. Growers received 89 per cent of the net sales in 1925 and 80 per cent in 1926. The lower percentage in 1926 was due to a smaller crop, relatively higher overhead expenses and a larger deduction for special reserve.

Grape baskets, boxes, lugs and other supplies are handled. Earnings from supplies for 1925 amounted to \$1096 and for 1926 to \$2881. At the close of the 1926 business year, the resources were \$3891, and there were no liabilities except to the members for capital invested in the business.

NEARLY twice as much fruit was handled in 1926 by the Producers' Co-operative Packing Company of Salem, Ore., as in 1925. The association was organized in 1921 as the Producers' Canning and Packing Company. The receipts of fruit from growers during 1926 were as follows: prunes, 852,627 pounds; Loganberries,

\$79,747 pounds; blackberries, 384,510 pounds; and Bartlett pears, 631,631 pounds. In addition, apples, gooseberries, strawberries, cherries, raspberries, plums and pears were handled. The larger part of the fruit is canned. The output of canned fruit for the past three seasons has been as follows: 1924, 43,010 cases; 1925, 45,470 cases; and 1926, 86,026 cases. The canned products are sold through a regular brokerage firm.

The annual statement for the year ending March 31, 1927, shows fixed assets amounting to \$75,727, share capital of \$72,500, and a reserve of \$37,663. There were 130 shareholders on March 31, and these held 725 shares of stock with a par value of \$100 each. The book value of the shares is given as \$151.95.

THE SUPREME COURT of Florida recently upheld the state co-operative act in a suit brought against W. E. Lee and his wife by the Clearwater Growers' Association.

THE DIVISION of Co-operative Marketing of the Department of Agriculture is anxious to receive copies of the constitution, by-laws, contract and reports of all co-operative associations. The need of having such documents on file is shown by an incident which happened recently. A large co-operative asked for credit from an institution specializing in the supplying of credit. The credit institution asked the Division of Co-operative Marketing for information about the association. Since the articles of incorporation, by-laws and reports of the association were on file, the division was able to quickly supply the exact information desired. Co-operatives will undoubtedly find it to their advantage to favor the division with copies of their important documents.

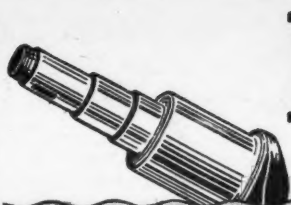
THE WISCONSIN Bureau of Markets reports that a new line of activity in the marketing of strawberries was undertaken last season in the state, consisting of cold packing over-ripe and undergrade fruit in barrels and placing the same in cold storage. The product was later sold to the soda fountain trade for use as crushed fruit.

THE MASSACHUSETTS Experiment Station is making a series of studies on marketing. A study on the market outlook for apples was recently concluded. The subject was studied from the standpoint of both the domestic and foreign demand. One of the important things brought out by the study is that the American housewives demand apples of good quality, red in color and of medium size.

SALES MANAGER J. A. Steward of the Mutual Orange Distributors, Redlands, Calif., recently visited the sales offices and many of the retail stores of the Great Atlantic and Pacific Tea Company, through which the M. O. D. is planning to sell about 30 per cent of its output this season. The remainder will be sold by the M. O. D. itself directly to former customers of the organization. Previous to this season, the M. O. D. sold most of its output through the Federated Fruit and Vegetable Growers, Inc. and the North American Fruit Exchange.

THE PORTO RICO Fruit Exchange, Inc., mails out price quotations to the trade in the United States when each boat load of fruit begins to move. The quotations name sizes and prices for each grade of fruit. The principal shipments of the present consist of grapefruit and pineapples. Citrons, limes, dasheens, bananas, pumpkins, avocados, oranges and a small amount of mixed fruits are also shipped.

THE IMPERIAL Valley Citrus Exchange recently passed a resolution against further planting of grapefruit in the Imperial Valley. Over 100 copies of the resolution were printed



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An even more sensational 7-Bearing motor

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You will get a thrill out of the **SPEED** and **POWER** and **SMOOTHNESS** of this newly refined Nash 7-bearing motor that cannot be imagined but must be experienced.

In every phase of performance it is a sensational motor.

The clutch, flywheel and crankshaft are balanced as a single unit to banish vibration.

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as Nash now offers you in every new Nash model at new **LOWER** prices.

And all 21 of the new Nash models are now cradled on new springs built of a secret new steel alloy.

This new material gives Nash springs a smoothness and ease of action found in no other car, regardless of price.

These new Nash springs are individually designed and balanced scientifically to the weight and size of each Nash model—*actually* 9 different rear spring types in all.

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(6330)

and were sent to chambers of commerce and other leading bodies in California. The reasons given for the action are that large plantings have recently been made in Florida, Texas, Arizona and the Imperial Valley and that the planting of further acreages at this time might seriously affect markets in the future.

The Brawley Chamber of Commerce is also discouraging the further planting of grapefruit in the valley, and the county agent's office is likewise discouraging the idea.

Monthly Market Review

(Continued from page 9)

the shortage of eastern peaches was causing market values in the East to approach a level of \$5 per crate or bushel basket. California growers finally had to take less money than

they originally expected from the canneries, and it is doubtful whether the high jobbing ranges in eastern consuming centers can long be maintained. However, Georgia and New Jersey are about the only states east of the Rockies having large quantities of peaches this year, and Georgia's output was one-third less than in 1926. Quality so far has been generally good. Aggregate returns at the end of the season may be greater than after last year's heavy crop and huge shipments. Carlot movement to date has been about one-third lighter than a year ago.

Pears and Other Fruits

"Pears likewise are a relatively light crop in the East, but California has considerably more than average production. In comparison with the exceptionally early and heavy movement last season, present pear sup-

plies from the West seem small. Total output so far has been less than half the corresponding shipments of 1926, but arrivals have been increasing. Plums and prunes have been only about half as abundant as during the forepart of last season; shipments have not yet caught up. Attempts are again being made to effect concerted action among fresh prune shippers in the Pacific Northwest. The 'Walla Walla plan' was an important factor in the situation last year. Cherry shipments, particularly from the West, have been running about half as heavy as in 1926. Market values have been correspondingly higher on all fruits. Lemons recently have been in lighter supply than last summer, but orange shipments were fairly well maintained. All citrus has been affected adversely by unfavorable weather conditions; outlook for the coming crop is not so bright as a year ago."

Rambles of a Horticulturist

(Continued from page 7)

separate article that will appear in the October issue.

The Indiana Meeting

In regard to the Indiana meeting, Secretary Monroe McCown and the other officers, as usual, did a good job in making arrangements and in carrying out the plans. The first day's meeting was held at Turkey Run State Park, which is a preserve of about 800 acres that was left in its original wild condition. In an afternoon meeting, the following subjects were handled by the parties mentioned: Round table discussion, by William M. Walton; Recent Developments in Codling Moth Control, by J. J. Davis of Purdue University; Recent Developments in Fruit Disease Investigations, by Dr. Max W. Gardner of Purdue University; Shipping Point Inspection, by A. R. Conklin, regional supervisor of federal inspection, Chicago; discussion of federal inspection, by M. L. Plumb of Evansville, W. C. Reed of Vincennes and H. D. Simpson of Vincennes; the Apple Situation, by Ralph W. Rees of Rochester, N. Y.; round table discussion, led by Frank Plass, president of the Indiana Horticultural Society.

The Coffing Orchards

The second day, July 29, was given over to a visit to the Coffing brothers' orchard at Silverwood, which is about 18 miles southeast of Danville, Ill. These two men, though still young, have built up one of the best orchards in Indiana. Their plantings, started in 1907, have gradually been extended until now they have 248 acres, most of which are not yet in bearing. All of the area is planted with apples, but a small acreage is interplanted with raspberries and peaches.

The orchards are located a short distance east of the Wabash River on high ground compared with the surrounding country. Thus, there is excellent air drainage. The ground is of clay loam nature and seems to be well adapted for fruit.

The Coffing boys are very fortunately situated with reference to insects and disease. They are not far enough south to have serious trouble with scale, although they spray regularly each winter with Scalecide for this pest. The codling moth rarely develops a second brood in their vicinity, and they are able to keep their fruit comparatively clean with three to five summer sprays of arsenate of lead and lime-sulphur. They have used dust to some extent but have never given it a fair trial. Scab is their worst problem. Mice give some trouble because of the sod mulch that is used, but by means of poison stations that are maintained through the orchard, they have been kept from doing serious damage.

Only One Crop Failure

The adaptability of the soil and location to fruit is shown by the fact that the first plantings of Stayman, Grimes and Ben Davis, made in 1907, have failed to bear only once since bearing age was reached. Like many other growers, the Coffings set their early plantings too close, only 27 feet being allowed each way. The trees have been trained high instead of encouraged to widen out, and although they do not seem to be suffering, the future performance would no doubt be improved if some of the trees were removed. However, a removal now would leave the remaining trees pretty far apart, thus reducing acreage yields quite materially. In the orchards now being set, all apples are planted 36 feet apart each way, and no fillers of any kind are being used.

The Coffings are ardent advocates of the sod mulch system. They have sometimes grown clover, but the orchards we saw are at present covered with fox tail and orchard grass of various kinds. The growth is mowed three or four times a year, and the clippings are concentrated under the trees.

Use Manure for Fertilizing

As for fertilizers, they have used nitrate of soda but in recent years have employed manure only. They can get this from the Indianapolis stockyards at about \$2.50 a ton placed in the orchard. They scatter it mainly under the trees but believe that as the trees grow older the space between the trees should also be covered. They have tried nitrate since beginning to use manure but could observe no appreciable benefit from it.

The Coffing orchards are thinned systematically each year except when the crop is light. Thinning helps to produce fruit of uniform size and free from defects.

The harvesting and marketing methods of the Coffings are quite unique. They carefully organize their picking crews. A good man can pick 80 bushels of apples a day, and he receives five cents a bushel for picking. The foreman inspects each tree when a picker finishes it. The fruit is hauled to cooling rooms as soon as possible after it is picked. After being cooled, it is taken over a sorting table where the inferior fruit is removed. The marketable fruit is then placed in barrels or boxes and is transferred to a large cool storage plant on the farm.

All Fruit Marketed by One Firm

All of the Coffing fruit is marketed by a firm in Danville, Ill. The fruit is practically all sold within a 50-mile radius of the orchard, and the Coffings get the fruit ready just as the firm calls for it. Thus, every package of fruit is the result of a fresh pack when it is sold, and there is no danger whatever of a customer finding rot in a package, as often occurs when the fruit is packed in the fall. Every package of fruit is guaranteed by the Coffings. They pay their marketing agent 10 per cent commission and believe that in consideration of the attention the firm is giving their fruit, and in consideration of the prestige their fruit has gained as a result of the system employed, the cost is well justified.

When the fruit is taken out of cool storage, it is run over a Cutler sizing machine, which was purchased last year when the Coffing brothers visited the Northwest with the American Pomological Society. An Andy Moe fruit cleaner has recently been purchased and is now on hand. This will not be used primarily to remove arsenic because its removal is not a problem in the vicinity; it was purchased for the purpose of giving the fruit a better appearance. It will be used after the fruit comes out of common storage and just before it is marketed, so as to reduce the loss from wilting to the smallest possible proportions.

Those who visited the Coffing orchards felt that they had seen a wonderful example of what can be done in developing a high class fruit farm, and they considered themselves well repaid for their time and expense.

A Good Word

Editor, AMERICAN FRUIT GROWER MAGAZINE: Just a word of congratulation on the thorough and practical manner in which your magazine covers the general subject of fruit growing. I keep a reference file of magazine subjects and there is hardly an issue of the AMERICAN FRUIT GROWER MAGAZINE but what contributes one or more subjects to my file.—Joe Retick, New Mexico.

Overlooked

"Don't you think that Wadsworth was right when he said, 'Heaven lies about us in our infancy'?"

"Sure, but he forgot to add that everybody lies about us in our maturity."—Illinois Stren.



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THERE'S nothing like a hot, fat spark to start an engine. Eveready Columbia Dry Batteries provide sure-fire ignition at the lowest cranking speed. One turnover and the engine starts with a bang.

It costs less to buy, less to repair, less to own a farm engine equipped with dry battery ignition and Eveready Columbia Dry Batteries. These reliable batteries last, are inexpensive and easy to replace.

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Put Eveready Columbias on your engines now and they will be ready for dependable service whenever you need them.

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Single room with private toilet, \$2.50
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Fig. 376

New York State Barrel Press
This Press is built from actual experience in
Orchards, Packing Houses and Storages
It is made to keep the heads of the barrels
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Three Years - - - One Dollar

Marketing the Culls

(Continued from page 5)

as much as may be received from cider but is considerably more than the average grower receives for apples of this grade.

Apple butter is one of the products the use of which has in the past been restricted to fairly well-defined areas. Where it is unknown, its introduction has as a rule been very slow. If properly advertised, it should become a standard product throughout the country. It is a product of merit, and it should be known more widely and used in increasing quantities.

The equipment for making apple butter could be set up in one corner of the cider factory. It consists essentially of a copper coil, a barrel and a copper screen colander. The heat necessary will require a small boiler of eight to 15 horsepower. Exclusive of the boiler, the equipment will cost approximately \$75. This is not a very heavy investment for the amount of work that can be done.

Apple Sauce from "B" Grades

A product which can be made to utilize large quantities of "B" or second grade apples, provided they have quality, is apple sauce. The apple grower may market a large part of his crop as apple sauce only if he produces a specialty. He cannot afford to manufacture the types of sauce or canned apples that are put on the market by large commercial concerns. His must be something a little better, and his market must be a special market. People will pay a reasonable price for any food that pleases them.

One bushel of apples and eight to 10 pounds of sugar will produce 30 to 36 pints of apple sauce, while the peels and cores with 20 pounds of sugar will yield about 25 pounds of jelly.

The jelly should pay the cost of manufacturing, leaving the returns from the sauce as pay for fruit and profit.

The cost of equipment for work of this sort would vary over such a wide range that I hesitate to place an estimate.

I do feel, however, that while not the most promising method of handling low-grade apples, it is worth the careful consideration of the man who contemplates operating a farm factory, and who is within easy reach of a large consuming population, such as a city, college or university. Hotels and restaurant systems are a good potential market for fresh sauce delivered in bulk in quantities demanded by their trade.

The man who equips for either apple butter or sauce may find it profitable to manufacture a limited quantity of boiled cider and cider jelly. The market for these products is limited and will absorb only about a given amount.

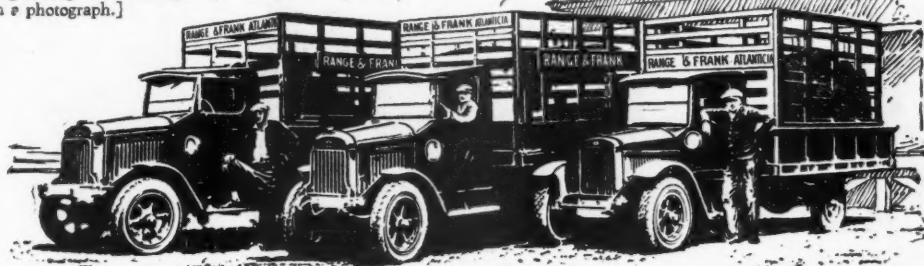
Vinegar is Uncertain Product

I am not sure in my own mind regarding the vinegar situation. As a producer of sweet cider, the grower might well convert his surplus into vinegar. As a manufacturer of other fruit products, he might well afford to manufacture enough vinegar to supply his own special trade.

Vinegar sold from the farm factory on the general market would come into direct competition with that of the large manufacturers and would not, except under most favorable conditions, be profitable. However, if marketed locally or if sold in small packages to a special trade, the profit would be well worth while. As a rule, the farm manufacturer would make his vinegar by the so-called slow process, and if properly made and ripened, it would possess a quality which no vinegar made by a rapid generator could equal. This is a distinct asset to farm-made vinegar. The vinegar room should be heated throughout the winter. Vinegar ferments best at temperatures above 60 degrees Fahrenheit. By carrying on the manufacturing process in a heated room, fermentation may be completed

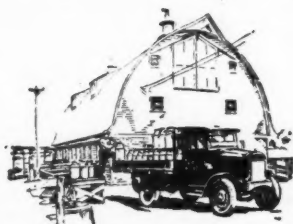
Three Go-Getting INTERNATIONALS

owned by Range & Frank, of Atlantic, Iowa. The trucks are loaded with stock and ready to set out. These boys have been very successful, hauling livestock 65 miles to South Omaha. The trucks haul a good many loads per week, reducing the road time 10 to 18 hours and effecting big savings in shrinkage. [Drawing made from a photograph.]



Left to Right: 3-Ton Heavy-Duty, 2-Ton Heavy-Duty, 1 1/2-Ton Speed Truck

International Trucks for Year-Round Work on the Farm



Model 63 3-ton International Truck in the dairy business, owned by Harry Marsh of Carlisle, Ia.

Plenty of Work for an International Truck

A load is just so many pounds, or tons, to an International, whether it be milk or cream, livestock, sacked or bulk grain, baled or loose hay, shelled or ear corn, fruit, vegetables, butter and eggs, chickens, coal, lumber and general building materials, feed, or any other of the many products that need hauling to and from and on the average farm. And it will haul trailers, pull scrapers, do road work, and even substitute for the auto in emergency. Body styles to suit every need.

AN INTERNATIONAL is the natural choice. An International Harvester has been building better and better motor trucks for industrial and farm use for over 23 years, and its history of heavy-duty machine development goes back nearly a century. International Trucks today are an unbeatable product, declared so by a great army of owners. The conservative farmer places his faith in this good reputation, based on such experience.

International offers the farmer a truck to be proud of, in the size to fit his hauling. Sizes run from the 3/4-ton "Special Delivery" and the 4 and 6-cylinder Speed Trucks for 1 1/4, 1 1/2 and 2-ton loads, up to the 5-ton Heavy-Duty unit. They are on display and sold through the 136 International Branches, the widespread Company-owned service organization which International Harvester maintains over this country. It is good to know that good service will always be available during the years your truck will be on the job.

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INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. OF AMERICA
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within six months, and by giving a six-months' ripening period, a fancy grade of vinegar will be produced within the year.

Apple Jelly Deserves Attention

The grower who is doing a general business in manufacturing apple products will certainly want to make some apple jelly. With slight changes, the apple butter or boiled cider equipment may be used for jelly making.

A bushel of good red apples will produce 75 to 100 glasses of sparkling jelly of high quality.

High Quality Must Be Keynote

The keynote of success in the operation of a farm apple-products plant must be specialty products of high quality sold on a market direct to the consumer. The farm factory cannot compete in the open market with the large commercial producers, but he can find his special market, and by giving his customers quality goods, his market will grow from year to year.

I am a firm believer in converting off-grade fruit into useful by-products.

FRUIT AND NUT CROP ESTIMATES FOR THE UNITED STATES.

Crop.	Condition.			Total production in millions.			
	Aug. 1, 1917-26.	July 1, 1927.	Aug. 1, 1927.	Harvested.	Indicated by condition.	July 1, Aug. 1, 1927.	1927.
Apples, total crop, bu.	58.5	46.6	41.8	199	246	137	128
Apples, com'l crop, bbls.	62.3	49.0	44.6	33.7	39.4	26.2	24.8
Peaches, total crop, bu.	60.4	48.1	46.9	54.3	68.7	45.5	44.8
Pears, total crop, bu.	62.3	49.8	51.1	20.8	25.6	17.6	18.0
Grapes, tons	82.5	84.6	81.8	22.10	22.35	22.54	22.54
Pecans	57.4	50.4	43.4	.....	.....	.....	.....

FRUIT AND NUT CROP ESTIMATES FOR CALIFORNIA AND FLORIDA.

Crop and State.	Condition.			Condition.		
	Aug. 1, 1917-26.	July 1, 1927.	Aug. 1, 1927.	Aug. 1, 1917-26.	July 1, 1927.	Aug. 1, 1927.
Almonds, California	69.8	66.0	68.0	Oranges, Florida	84.7	59.0
Apricots, California	70.6	63.0	66.0	Satsuma oranges, Florida	.....	53.0
Avocados, Florida	.....	38.0	47.0	Pineapples, Florida	.....	58.0
Figs, California	90.9	86.0	89.0	Plums, California	73.5	63.0
Grapefruit, Florida	81.5	54.0	60.0	Prunes, California	74.6	67.0
Grapes, California:				Walnuts, California	83.7	101.0
Wine grapes	88.6	90.0	88.0			
Raisin grapes	85.7	89.0	86.0			
Table grapes	83.9	83.0	81.0			
All grapes	85.8	88.0	85.0			
Lemons, California	77.3	66.0	64.0			
Limes, Florida	78.6	43.0	48.0			
Olives, California	62.0	74.0	66.0			
Oranges, California:						
Navel	.....	68.0	67.0			
Valencia and miscellaneous	.....	76.0	67.0			
All oranges	74.0	72.0	67.0			

¹ Interpreted from condition reports. Indicated production increases or decreases with changing conditions during the season.

² Estimate of total production for fresh fruit, juice, and raisins.

³ Four-year average 1923-26.

⁴ Nine-year average 1918-26.



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KELLY-SPRINGFIELD TIRE CO.
GENERAL MOTORS BLDG., NEW YORK, N. Y.

KELLY SPRINGFIELD TIRES

Harvesting and Handling Apples for Storage

(Continued from page 3)

fruit may be pulled from the tree, and the softening of the flesh are considered in connection with each other, a good estimate of the maturity of the fruit usually can be made. The development of seed color does not provide a worth while indication of the arrival of maturity, as seed color varies too greatly with varieties and various influencing conditions.

Place Fruit in Storage Immediately After Picking

Once the fruit is removed from the tree, it should be moved to cold storage with the least possible delay. By referring back to our physiological review, the reason for this will be apparent. Every hour the fruit is permitted to remain in a hot orchard or in a warm packing house, the storage life of the fruit is reduced many fold. The picked fruit should be placed in the shade and removed to shelter as soon as possible. In like manner, the fruit should be packed and on its way to storage with all possible haste unless some method of pre-cooling is used at the packing shed.

With fruit intended for common storage, a different problem presents itself. Air-cooled storage houses can-

not be operated at very low temperatures during the early fall, as the temperature secured is entirely dependent upon the temperature of the weather. The best that can be done is to secure the lowest temperature possible, and in practically all cases this is well above the average mean temperature for outside conditions.

Investigations in Indiana and in numerous other localities show that the mean temperature for the shaded portions of the orchard is lower during the early fall than the mean temperature of a common storage for the same period. Fruit has been found to remain in better condition when stored out of doors in a shaded location, such as the north side of a building, than when placed at once into common storage. Furthermore, fruit permitted to remain upon the tree has been found to soften less and keep better and longer in subsequent common storage than fruit picked from the tree and permitted to remain in the orchard until cooler weather.

Handling Fruit for Common Storage

For these reasons it is best to permit fruit of the latter varieties in-

(Concluded on page 20)

CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



Preparing for Fall and Winter

IS YOURS one of the methodical families that goes systematically about the business of getting everything in shipshape for winter, or does Old Man Boreas each year find you only half prepared?

If you are so fortunate as to belong to a systematic family, then you need read no further. Just carry on as usual! If, on the other hand, you belong to a haphazard family, the suggestions given herein may prove worth while. They should at least inspire the haphazards to improve their "system" to some extent, if not in the manner suggested, then by some original means of their own devising.

September and October are essentially harvest months and constitute the final period of gathering and storing in preparation for the long winter to follow. We must make haste, for there is much to be done in the allotted time.

Storage Place Needed

Perhaps the most important item on the list is the picking of fruits and certain vegetables, the digging of root vegetables, and the storing of the harvest in well ventilated, frost-proof places. In areas of severe frosts, the old-fashioned root cellar is without doubt best for the storage of that type of vegetable. Potatoes, carrots, beets, and such tubers are "smelly" things during storage and should not be kept in the house cellar. Another cellar or compact warehouse with insulated walls and provision for heating when necessary is essential if any quantity of canned fruit, pickles, cider, apples, etc., is to be stored. Proper storage facilities are most important. 'Twould be hardly less wasteful to let the fruit and vegetables rot on the ground than to store them carelessly.

You will doubtless rise up and say, "But all this is a problem for the men and has no place in the 'Chats' department."

To which we would reply, "Yes, my dear, it is men's work of which we are speaking, but since the days of Adam and Eve, it has been woman's duty and privilege to make helpful, constructive suggestions to her mate. And anyway, don't worry, we'll suggest something for you to do in just a minute."

There are always many imperfect specimens among fruits and vegetables which are unsuitable for commercial marketing, and these go to waste unless someone gets busy and does something about it. Here's where the housewife comes in. She can encourage the boys of the family to save the windfall apples, sort them carefully for rotten or moldy fruits, wash them and then make apple cider. Good sweet cider finds a ready market either in nearby towns or large cities. Any surplus cider may be made into vinegar and sold in that form. But great care is necessary in this last process if good vinegar is to result. It may be well for the boys to secure a United States Department of Agriculture bulletin on the subject and then follow instructions carefully, in this way insuring themselves of an A-1 product. They should thus add substantially to their bank accounts through the saving of windfall apples alone.

Culls Make Pickles

Heads of cabbage which have cracked open make excellent sauer kraut, either for the market or home consumption. Oversized cucumbers

are ideal for dill pickles, while ripe cucumbers make a delicious sweet, spiced pickle. Green tomatoes are called for in many pickle recipes. For mixed pickle (sweet and spiced), the thrifty housewife could use green tomatoes, small but ill-shaped cucumbers (if she wants to market the others), sprigs of cauliflower from unmarketable heads, small white onions, a few small red peppers for color, together with a suitable liquor of vinegar, brown sugar and spices. If carefully made, the resulting pickle will be the most prized one in her winter store. Surplus beets may be cooked and made into beet pickles, then sealed for use later.

Imperfect and over-ripe fruits of various kinds may be made into delectable sweets for family surprises after most fresh fruits are gone. The old-time favorites, such as peach butter, apple butter and pear butter, are examples. Small pears may be peeled, spiced and turned into delicious spiced pickles. Be sure to leave the stems on them. Small, slightly green peaches may be used whole for spiced pickles or for preserves. Watermelon rinds make wonderful preserves and pickles both. The fruit conserves made with the addition of nuts, raisins (if desired), pineapple, and orange and lemon peel offer wide possibilities in saving fruit that would otherwise go to waste. Apricot, peach, prune, rhubarb and tomato conserves are well known. Almost any fruit, together with both green and ripe tomatoes, makes "lickin' good" preserves, to use an old-time expression. Artificial pectin is expensive but worth while in thickening certain preserves as it eliminates the long cooking process, thus insuring a mild flavor.

Jellies are not so successful when made of fall fruits, with the exception of grapes, quinces and cranberries, as when made of earlier, juicy, tart fruits. It is well to keep this fact in mind.

Canning Is Important

No good housewife needs to be reminded of the great possibilities offered by the cold pack canning method for the saving of perishable fruits, meats and vegetables for future use. Almost anything can be canned, though of course, it does not pay to can certain vegetables, such as cauliflower, carrots, squash or lima beans, as these can be stored more economically in other ways. Neither does it pay to can apples for the same reason. Most fruits require a short cooking process—as soon as they begin to shrink in the jar they are cooked. Vegetables, except tomatoes, require a long cooking process, usually from three to six hours by the wash boiler method. Meats require six hours of steady boiling by the wash boiler method. Pressure cooker time schedules are very much shorter. Vegetables require a blanching process or bath in scalding water for three to five minutes and then a cold dip before packing in the jars if they are to keep properly and have the best possible flavor when they are ready to be served.

Prepare School Clothes

Another important item to bear in mind during September is that by the latter part of this month or the first of October the youngsters will be starting to school and consequently will need their fall clothes assembled by that time. The type of clothes will depend on the type of school, distance from school, method of trans-

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portation, the climate, and the age of the children. They should have substantial, perfectly fitting shoes, warm stockings, underwear and overcoats, together with well-made outer garments of good material. The girls will need several dresses, a sweater and pleated skirt or middie and skirt. School clothes for boys will depend on the community—it may be overalls and shirts, or corduroys, or regular boys' suits.

Young children should not have too much attention paid to clothes, but they should be well enough dressed so that they need never be self-conscious because of their clothes. That means they should not have either too much less or very much more than their schoolmates. The main idea is to have them neat and clean and suitably clad for their climate at all times.

The college girl should take with her several simple but smart and becoming school dresses, a pretty sweater and skirt, an informal silk dinner dress, one formal dancing or party frock, a good coat, a sport hat and a dress hat, a pair of smart, sporty oxfords, a pair of party slippers (patent leather is best for this type unless the evening dress requires light colored slippers), a pair of hiking boots and a good bathrobe, together with an adequate supply of dainty undergarments and suitable silk and woolen hose. It is best to take a minimum amount of clothes, and then add other items to the wardrobe as the need arises and the girl has found the exact type she will need. She will want clothes that will look nice with a minimum of pressing and repairs.

Mother can best aid the college-going son by going with him when he purchases his suit, to see that the material of which it is made is firm in weave and fairly smooth of surface. The firm weave means that it will wear well and look nice at all times because it will hold a press. A dark suit shows lint and wear more than a light suit, but, of course, a suit should not be too light in color. The same things apply to caps, topcoats, etc. Men give their clothes long, hard service, so it is best to pay a good price for their suits, overcoats and shoes. They last twice as long and look nicer all the time they are worn.

Clothes Inventory Needed

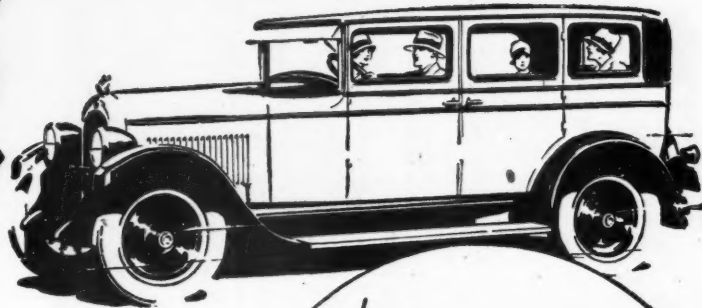
Then, mother will need time to check over her own wardrobe. She must not get so busy helping son and daughter that she neglects herself. First, she will get her last season's garments from summer storage, and look them over carefully to determine their possibilities for the present season.

Possibly that tailored suit merely needs shortening and a thorough cleaning and pressing by a reliable tailor to make it entirely presentable. With a new blouse, a small flower for her coat lapel, a new tie or scarf in some gay becoming color which harmonizes with the touch of color in the hat and flower, new gloves, and smart oxfords and harmonizing stockings, mother will have a "new" outfit at small expense. One doesn't need a large number of new clothes to be well dressed, but rather one or two complete costumes which are perfect down to the last detail. She may wear her one outfit every place she goes during the season and be more interestingly costumed than her weaker sister with several dresses without the proper accessories for any of them.

She may find a dress that will look "just as good as new" with a fresh collar and cuff set, or with one of the long pointed vests of georgette in light color, and possibly a new tie and shoulder flower in suitable style and color. Almost invariably the dress will also need shortening to a becoming length and a thorough cleaning and pressing.

If this is her year to buy a new coat, all well and good; if not, then the last season's wrap should be shortened and sent to the tailor's for cleaning and pressing. It might be well to have him do the shortening

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also in the case of a lined coat. In buying a coat, remember that a soft fur collar is very becoming to most faces. If the coat is to be worn several seasons, a very good quality garment should be purchased in the first place, and it should be of excellent material in one of the neutral, conservative colors, such as black, blue, brown or taupe gray.

Preserve and Marmalade Recipes

Grape Marmalade

Select slightly under-ripe, firm Concord grapes. No other variety can be trusted to jelly as well. Pick over, wash, drain and remove stems from grapes. Separate pulp from skins. Put pulp in preserving kettle and cook until seeds separate from the pulp. Rub through a hair sieve to remove seeds, return pulp to kettle with skins, add an equal quantity of sugar and cook slowly 30 minutes, stirring occasionally. It should be nice and thick when ready for the jar. Put in stone jar or tumblers and seal with paraffin.

Prune Conserve

Select firm, medium ripe fresh prunes, wash, pit and run through the food chop-

per. To 3 qt. of the ground fruit use 2 qt. of sugar, 3 oranges and one lemon cut in small pieces, and one No. 2 can of pineapple run through the grinder. The juice of one or more additional lemons may be added if desired. Cook all together until well thickened, stirring frequently, and over a low fire towards the last to prevent scorching. Add 2 c. of chopped walnut meats 10 minutes before putting into jars. Seal in sterilized jars and store. Raisins may be used if desired.

Plum Conserve

6 lb. stoned plums Juice of 1 lemon
2 lb. raisins 1 lb. shelled nuts,
Pulp 4 large oranges chopped
Rind 3 oranges 5 lb. sugar
Wash plums, cut in quarters and remove pits. Separate raisins. Peel oranges, saving the rind of three of them. Place the rind in boiling water and boil 5 minutes. Cool and chop fine. Separate oranges in sections, discarding white membranes. Mix well together plums, raisins, orange pulp and rind, lemon juice, nuts and sugar. Let stand one-half hour. Bring to boiling point and boil 20 minutes. Put in sterilized jars and seal.

Apple Jelly Specials

Make plain apple jelly by the usual method, using tart apples, slightly under-ripe and ¾ c. sugar to 1 c. juice. While the fruit juice and sugar are boiling together, flavor with mint leaves, spices, or rose geranium leaves, by bruising the con-

ditions (whichever is used) laying in sieve and passing through and through the syrup until desired flavor is obtained. Use lemon juice and green vegetable coloring to give a delicate green color. Use pink coloring with other two special flavors.

Tomato Preserves

- 1 lb. yellow pear tomatoes
- 1 lb. sugar
- 2 oz. preserved ginger
- 2 lemons

Wipe tomatoes, cover with boiling water, and let stand until skins may be easily removed. Add sugar, cover and let stand over night. In the morning pour off syrup and boil until thick, skim, add tomatoes, ginger and lemons in slices (with seeds removed). Cook until tomatoes are clear. Place in sterilized jars and seal.

Cranberry Preserves

- 1 lb. cranberries. ½ c. water.
 - 1 lb. sugar.
- Make a syrup, then add cranberries. Cook until soft. Put in sterilized jars.

Table of Abbreviations

1 t equals	1 teaspoonful
1 T "	1 tablespoonful
1 c "	1 cupful
1 oz. "	1 ounce
1 lb. "	1 pound (16 oz.)
1 pt. "	1 pint (2 standard c.)
1 qt. "	1 quart (2 pt.)

All measures level.

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South of the Rio Grande

(Continued from page 8)

icans found themselves in no better condition than before. Gradually they began to feel that the power of the church was responsible. Benito Juarez, himself a Catholic, was made president in 1854, and he succeeded in getting passed the constitution of 1857, which definitely separated the church and state and vested in the people of Mexico title to all church property, which according to one authority, then amounted to about half of the wealth of the land. A reform law was also passed in 1859, which authorized the breaking up of the ejidos or communal lands of the villages. This proved to be a bad thing.

The Diaz Dictatorship

While important laws were now on the books, slow progress was made in enforcing them. The church transferred much of its land to trusted members and to fictitious persons. Juarez, who is now regarded as the Lincoln of Mexico, was eventually crushed and his good laws became practically non-operative. President Tejada, in 1873 and 1874, re-established the reform laws of 1859. The advent of the Diaz dictatorship in 1876 definitely put a stop to all progress. He favored the church, and it again became strong. The large estates or haciendas became larger and stronger than ever. Powerful outside interests were permitted to come into Mexico and exploit the natural resources and the people. The ejidos, or communal tracts, were largely taken from the villages. In 1910, four per cent of the people owned practically all the land and 96 per cent were practically without land. One estate consisted of 10,000,000 acres and there were about 40 which consisted of 250,000 acres or more. Eighteen land companies owned an average of about 800,000 acres each, or about 10 per cent of the total area of Mexico. William Randolph Hearst of New York owned about 1,250,000 acres.

What was the poor peon to do under the circumstances? All he could do was work for the land holders and this he did. During the latter part of the Diaz period, his wages were from five to 25 centavos a day (two and one-half to 12½ cents in United States money), he worked 10 to 18 hours a day, his ration consisted of a quart of corn and a quart of pulque, he worked under any conditions his employer might require, he was kept in practical slavery by debts owed the company stores, and he voted as the landlord wished. The Mexican census of 1910 lists the Indians as "peones de compo," which means agricultural laborers held in debt service.

The Revolution of 1910

Matters became so unbearable that in 1910 the revolution occurred during which Diaz was overthrown. President Madero, who led the revolution, was soon assassinated. Revolution continued almost uninterrupted until 1917, when under Carranza a new constitution was passed. This restated in more or less drastic form the important features of the constitution of 1857 and the reform laws of 1859 and 1874. It provided that all ministers must be Mexican born, that primary education must be secular, that ministers may not vote or be elected to office, that no religious order may possess or administer property or capital, that churches and church property are the property of the nation, that ministers of religion must register and be vouched for by 10 persons of the community, that ministers may not inherit property from ministers of the same creed or from private individuals unrelated by blood to the fourth degree. It also contained important enabling provisions which permitted the passing of regulatory laws pertaining to agriculture, mining and the oil industry.

The constitution of 1917 was not enforced by either Carranza or Obregon, his successor. During the present administration, however, impor-

tant steps have been taken. An agrarian program has been placed in operation which is breaking up the landed estates and distributing the land among the peons and is also educating the peon boys. Laws pertaining to oil properties and mining have been passed and are being enforced. The laws relating to ministers and churches have been enforced since July 1, 1926.

Thus, we see that the last 400 years of Mexican history have been a struggle on the part of the Aztecs to regain the rights they possessed before the conquest of Cortez. Their battle has been one between a powerful clergy and great landed interests on the one hand, and poor, ignorant, superstitious masses on the other, led now and then by a competent leader. The most surprising thing in the whole situation to me is the fact that the Aztec race has been able to survive at all under the circumstances, but it has survived and the Aztecs are still present in large numbers, though many of them carry a mixture of

Spanish blood. Mexico contains the largest Indian population of any country in the western hemisphere today.

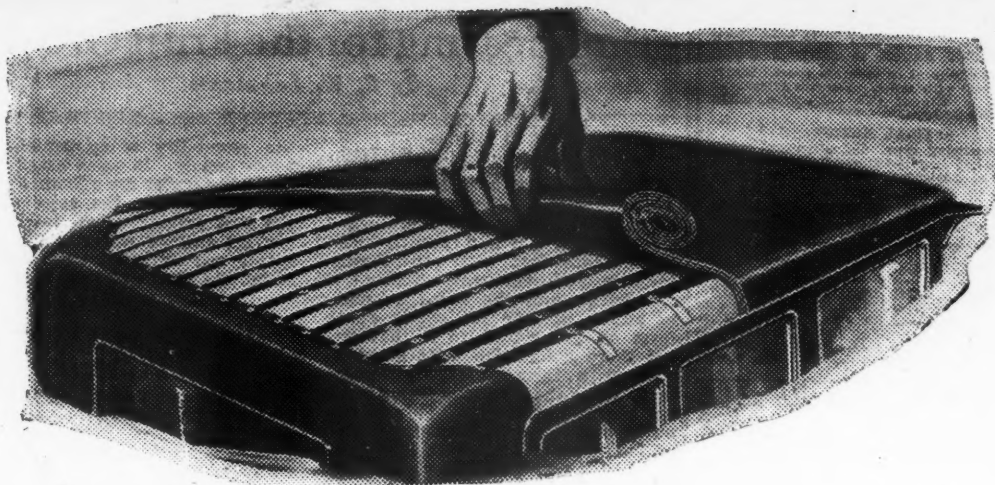
Furthermore, in spite of the fearful obstacles which have faced them, the common people of Mexico have been slowly gaining back their rights and, notwithstanding reports and intimations to the contrary, they are now in the best position they have been in since the days before Cortez arrived in their midst. A race of people which can pass through what the Aztecs have experienced and survive, let alone make progress against such fearful odds, must possess some very substantial characteristics indeed, from both a mental and physical point of view.

In view of the circumstances, is it any wonder that such conditions should prevail as are found in Mexico today? In view of what the Mexicans have suffered at the hands of their rulers and favored interests, is it surprising that they should mistrust almost everyone and seem to

lack confidence even in themselves? Cannot we expect, under the circumstances, to find crime and treachery and organized banditry? Would any race of human beings be much different if they had been forced to undergo the privations of the Aztecs for the last four centuries?

In the next article, which will appear in the October issue, I shall describe the agrarian program of the present administration and attempt to show how it is being administered with the object of restoring the peon to his rights, both for his own good and for that of Mexico in general.

Editor's Note: In the August issue on page 18, it was stated that the cathedral of Mexico City was constructed in 1525. This date is in error. The cathedral was built on the site of the Great Teocalli or temple of the Aztecs. It was begun in 1573 and was finished in 1791. It cost about \$2,000,000 and is the most elaborate cathedral in the western hemisphere.



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Engineering for the Fruit Grower

By E. W. Lehmann

Checking Soil Washing

A YOUNG LADY who is teaching in an eastern college came into my office this morning with a problem of soil washing. She had recently visited the old home farm after several years' absence and she was greatly distressed because she noted a number of gullies at different points on the farm on her return to it that were not there before she went away.

Many a farm is slowly washing away while the man who farms it does not notice the change. This is especially true of sheet washing. While gullies are not formed to any extent in sheet washing, the most noticeable thing is the depletion of fertility and the reduced yields. On practically all of our slightly rolling farms and on all of our hill farms there is more fertility lost by erosion than that removed from the soil by plants.

In many parts of the country, the farm advisers or county agricultural agents have awakened to the seriousness of the erosion problem and are making a special effort to check it and to reclaim some of those fields that are now partially abandoned. There are many sources of information on methods of checking soil washing. Some of the state colleges have prepared special bulletins on the use of the broad base terrace as a means of checking erosion. The United States Department of Agriculture has a fine series of bulletins on the subject. The Portland Cement Association, Chicago, Ill., has an excellent circular telling how to construct dams for stopping gullies.

It would pay a lot of farmers to go away from their farms and orchards for a little while and come back to them with eyes opened to the changes that time and weather have wrought. Some of them would recognize the signs of a robber, whom we may call "soil erosion." He has been playing havoc with the owner's best possession, the thing that makes a farm a good farm or a poor farm. Don't forget that the soil, your soil, is your wealth, which determines the success of your farming business. You cannot afford to neglect it. You should feel distressed if your soil is washing away.

Drainage Wells Not the Best Outlet

A RAINY SEASON such as we have had in many parts of the country this year prompts questions on the subject of drainage. A rather common question is one as to the effectiveness of drainage wells as outlets. This method of drainage has proved satisfactory in only a few restricted areas. In northern Iowa is an area where there are a number of these drainage wells, but they are not entirely satisfactory.

According to Prof. Ayers of the Iowa State College, the history of the Iowa drainage well projects shows that only about 30 per cent of those installed are permanently successful, due to the fact that, in many cases, no outlet exists to the subterranean cavities into which the surface water drains. Such a drainage well would, of course, work fine until the caves became filled with water, after which time it becomes inoperative, and the entire tile system draining into the well is of no value.

Anyone considering the possibility of sinking a well to serve as an outlet for surplus water must not make too much of an investment in a system to discharge into it, without recognizing that the final results that may be secured are purely speculative. Under certain conditions it would be worth trying.

One point in regard to drainage wells as an outlet to a drainage system that should not be overlooked is

the possibility of contaminating the water supply. In some cases the well supplying water for drinking purposes may extend into the same strata as the well serving as an outlet for the surplus surface water which may be highly contaminated with the wastes about the yard and barn lots.

Diagnosing a Drainage Problem

THERE are certain definite principles involved in the design of any drainage system. However, the success of a drainage system depends on many local conditions which make it necessary to make a survey or examination before a definite recommendation can be made. In other words, the doctor should see the patient before he attempts to diagnose the case.

In most localities the services of an engineer can be secured, and it is economy in the end to have an experienced man check over the situation and make recommendations. Many practical ditch diggers will tell you that you do not need to go to the expense of hiring an engineer, that they can put the tile to grade without a level. People give you the same sort of advice when you get sick. Land that needs draining is sick land. It has too much water, not on the brain, but between the "grains."

The size of the tile outlet should depend on the area involved. The length of tile, the amount of fall or grade, and all of these factors are determined by taking some observations and making some calculations. Of course, the size of laterals, the length of laterals, the depth and the distance apart are more or less standardized. It is considered good practice to use five-inch tile for laterals; four-inch are sometimes used. In the early days, three-inch laterals were used in the East. I would always specify five-inch, except for short laterals of a few hundred feet, when four-inch may be used.

It is not good practice to make the laterals more than 80 rods long—a quarter of a mile. This means that the main and submain must be located so the laterals will extend over the area drained. Avoid short laterals as far as possible. Reasonably long laterals placed in parallel strings make the most economical system.

The depth the laterals are placed and the distance apart depend on local conditions. In most soils, good drainage is secured by placing the laterals deep. If there is a tight clay subsoil, it may be necessary to place them nearer the surface. The distance they would be placed apart would vary from four to eight rods. In tight soils they would be placed closer together, and in open soils they would be placed farther apart.

With a good operator, a ditching machine will give as good results as an expert ditch digger with a spade and usually at less cost. Of course, whether the job under consideration should be done by machine or by hand labor will depend first on the size of the job, second on whether there is a machine in the community, third on whether the job is sufficiently large to justify moving a machine to it, and fourth on the local labor situation.

It should be remembered that to thoroughly tile drain a farm is an expensive operation, and the mistakes of the men installing tile drains are like the mistakes of our medical friends in that they are also placed under ground. Therefore, be careful to have your drainage ailment properly diagnosed.

Farm Lighting

ONE OF the most interesting papers presented at the twenty-first annual meeting of the American Society of Agricultural Engineers at St. Paul

a few weeks ago was one on farm lighting by W. C. Brown of the Engineering Department of the National Lamp Works of the General Electric Company of Cleveland, Ohio. Mr. Brown pointed out that there must be enough light, that it must be properly distributed for the job in hand, that there must be no objectionable glare, that the correct combination of lamp and reflector must be used, and that the lamps must be of the proper voltage. In addition, the wiring system must be properly designed and installed.

All of these principles were discussed and carefully illustrated. The importance of proper reflectors for use in the outbuildings, the barn, the shop, the henhouse, etc., was stressed. Special emphasis was given to the lighting of the various rooms of the house. Everyone interested in this subject will be glad to know that this excellent paper by Mr. Brown will be in bulletin form and may be secured by writing to the National Lamp Works of the General Electric Company at Cleveland and requesting Bulletin 53 on Farm Lighting.

Harvesting and Handling Apples for Storage

(Continued from page 16)

tended for common storage to remain upon the tree as long as there is no danger from freezing, as it will go into storage in better condition than fruit picked earlier and placed in common storage at once or than fruit picked and held for several weeks in the open before placing in storage.

Apples should not be placed in common storage when warm. An ideal practice is to leave them in the orchard over night and bring them into the storage early the following morning. If the fruit is graded before storing, it is well to leave the graded fruit on the packing house floor over night, providing all the ventilation possible, and then take the fruit to storage early the following morning.

Every simple precaution taken to reduce the temperature of the fruit and to maintain the lowest possible temperature above the freezing point that it is possible to secure will pay greatly in the increase of the storage life of the fruit and the development of the highest quality product.

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BETTER TOBACCO! FRAGRANT, MELLOW! Five pounds smoking, 75c. Four pounds chewing, \$1.00. Farmers' Club, 53, Hazel, Kentucky.

Bee Keeping for Fruit Growers



By H. F. Wilson

Honey Crop Conditions for 1927

REPORTS up to and including July 15 indicate that throughout the United States the honey crop will be below normal, due to the fact that the bees were not in the best of condition when the honey flow started.

In some sections, the honey flow has been light because of a lack of moisture. The United States Bureau of Agricultural Economics issues a semi-monthly report which is available to every beekeeper in the United States upon request. If you wish to receive this report regularly, write to the United States Bureau of Agricultural Economics for their semi-monthly report on honey. The street address is 1358 C street, W., Washington, D. C.

The Bureau of Agricultural Economics, in securing this information for our beekeepers, divides the United States into 10 sections.

In the California section, bees are reported as having secured a satisfactory surplus from sumac and buckwheat. Yield from sage has been light. The honey is unusually dark this year, ranging between amber and extra light amber. In the orange belt, the crop will be one-third or less. Many beekeepers are looking for only enough honey to winter on. In northern California, prolonged cool weather has been unfavorable for nectar secretion, and north winds have had a drying effect on the honey plants. The alfalfa honey crop will be light.

In the Pacific Northwest, including Washington, Oregon and Idaho, the alfalfa honey crop will be light. Fall plants are still looking well and offer some prospects for a fair crop.

In the inter-mountain states, including Montana, Wyoming, Utah, Colorado and southern Idaho, bees have so far stored little surplus and the crop will be short. In some areas, beekeepers do not expect to get more than enough honey to winter their bees.

In the Arizona section, a good crop is expected from mesquite and catclaw. In most sections, the flow from alfalfa is light, while in a few areas a good surplus will be secured if the weather continues favorable. Some honey from long staple cotton—an average yield of good quality honey, estimated around 90 pounds per colony—will be secured in a few localities. In New Mexico, a good crop of honey is reported from alfalfa.

In the Texas region, a good surplus is reported from marigold, sage brush and horsemint. Some beekeepers are securing large crops while others are securing practically nothing. It is estimated that the crop will be only about 50 per cent normal.

In the plains area, including Iowa, Missouri, Kansas and the Dakotas, the crop is spotted. Some localities have prospects about equal to those of last year, while others are producing honey quite rapidly. In central Iowa, the prospects are poor. Unless rain comes soon, the flow will be cut short. The quality of the honey is reported as good. In the east central and north central states, where colonies were strong, a good surplus is being secured. While alsike and sweet clover have yielded abundantly, the nectar flow has practically stopped in most of the territory, due to a lack of rain. A fair crop is expected from milkweed in the Michigan territory. Swarming has been unusually heavy. A very good crop is being secured in Wisconsin.

In the northeastern states the crop will be very spotted—some report an

average yield, others a short distance away will not obtain any surplus. This is probably due to the difference in colony strength. Reports from New Jersey indicate an average of 100 pounds extracted, with best colonies producing probably twice that amount. Prospects are good for the buckwheat crop.

In the southeastern states, including Louisiana, Alabama, Georgia and the Carolinas, prospects for a good crop over most of the territory have improved, although a crop failure is reported from Alabama and much of Georgia, due to long continued drought.

In central Florida, the bees are building up well, and in northern Florida, the yields from tupelo will be about 50 per cent. The crop left over from last year seems to be moving out fairly well, and there is a general improvement in prices. These conditions indicate a possible improvement in the honey market and will give the beekeepers an opportunity to recover from the slump following the 1925 bumper crop.

Wisconsin Beekeepers Secure Aid in Marketing

THE WISCONSIN legislature has just appropriated \$6000 a year to the state department of markets for aid for Wisconsin beekeepers. A field man is to be secured, and it will be his duty to aid in helping the beekeepers to secure a satisfactory market for their honey. Considerable attention will be given to the standardization of packages and labels, as well as to improving the quality of the product sold in small packages.

Keep Broodrearing Going in September

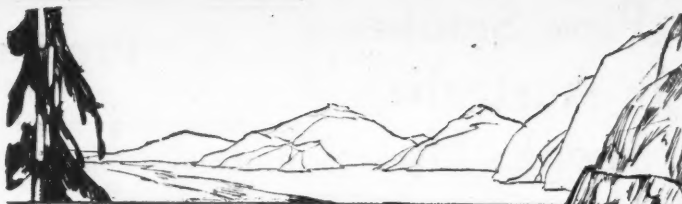
IT IS highly important that sufficient stores be available to the bees during the month of September so that they will be able to rear at least three pounds of young bees for the beginning of the winter period.

It is a common practice for the beekeepers in most sections to remove all the honey crop and let the bees do the best they can in the fall. If a fall honey flow is available in your region, it will not be necessary to pay particular attention to providing additional stores. But if you have no fall honey flow, summer stores should be left on the hive to the extent of 25 or 30 pounds, or broodrearing is likely to stop as early as September 1, with the result that the colonies will not have young bees for the winter and spring period.

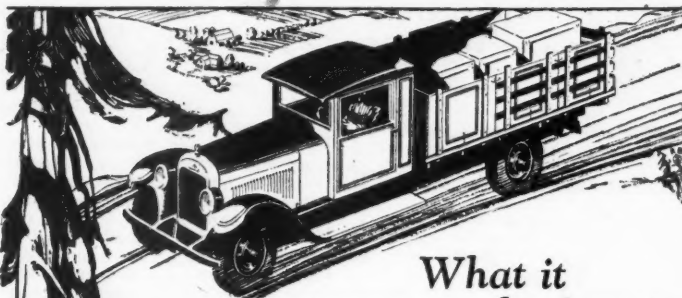
Both Wondering

Wife—Why did you fall in love with me, Tom?
Tom—So you've begun to wonder, too?—Oil Weekly.

ACCORDING to the Florida Review, the old U. S. S. Constitution is being reconditioned with oak timber made from logs buried in the fresh water and mud deposits of Commodore's Pond, seven miles from Pensacola, for half a century. The wood shows no sign of deterioration and would undoubtedly retain its value for many more years.



THE NEW STANDARD SPEED WAGON



What it means to the farmer

It means the savings of getting to market and back more quickly, for the new Speed Wagons are still faster, still more powerful, still stronger pulling on any road.

It means less danger of damage to goods in transit, for the new Speed Wagons are easier riding than even Speed Wagons have ever been before.

It means surer control on slippery pavements or in meeting the emergencies of the road, for the new Speed Wagons are equipped with 4-wheel brakes.

It means new comfort in any weather, for the new Speed Wagons assure "coupe comfort" with their new and improved cab and driver accommodations.

It means new ease of loading, for the new Speed Wagons are lower—"only thigh-high."

And it means even more of the dependability, long life, and sure economy which in the past have made Speed Wagons the ideal farm truck.

Try one today—see for yourself what Speed Wagon improvements can mean to you.

REO MOTOR CAR COMPANY
Lansing Michigan

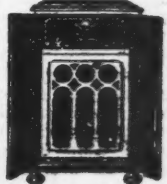
6 Cylinders 4 Wheel Brakes Coupe Cab

SPEED WAGON

for faster, surer,
easier, cheaper hauling



M. E. TREGO



200 NEW MONEY MAKERS

DEALERS and AGENTS WANTED

You can make \$500.00 and as High as \$1,000.00 Per Month Demonstrating Our Easy Selling and Wonderful Line of TIRES, TUBES, FLAPS and AUTOMOBILE NECESSITIES and the FAMOUS

TREGO

LIGHT SOCKET, NO BATTERY

Radio \$125

Agents and Dealers everywhere are making big money selling this exclusive Agents' Line.

Free Demonstrating Sets To Successful Agents

Dept. A.F.G.

No.

Trego Radio Mfg. Co. Kansas City, Mo.



TREGO PORTABLE PHONO \$9.90

Write for Big Free Catalog

A Pipe Smoker in Australia Speaks Up

Mr. Jones explains how he is increasing the membership of a certain smoking club

It cannot help but give us a thrill to have someone on the other side of the world write to us in the same pipe-smoker's language that we hear at home.

Also, it prides us to learn about the growing membership of the South Australian branch of the Edgeworth Club.

The fraternal spirit that exists between pipe smokers evidently spreads across the seven seas. And to help it along, Edgeworth is on sale in almost every country in the world—quality and flavor exactly as you find it in your own home town.

Hear what the gentleman in South Australia says:

Mount Barker Road
or Craters P. O.
Sterling West
South Australia
November 18, 1926.

Larus & Bro. Co.
Richmond, Va.
Gentlemen:

Having been a smoker for the past twenty-six years, I have never come across any tobacco to compare with your Edgeworth. It is a pleasure to smoke, does not affect the health in any way whatsoever, and is most cooling and tasty to the palate.

Everyone I come in conversation with that is a smoker, I always introduce your Edgeworth and if possible offer them a pipeful.

Once more I say it is a tobacco fit for anyone to smoke.

Yours faithfully,
W. A. Jones.

Pipe smokers prefer Edgeworth for various reasons. Some like it because its quality never changes. Some like it because of its flavor. Others smoke it because they can buy it wherever and whenever they like. Perhaps after you try Edgeworth you will discover still another reason for the popularity of this tobacco.



To those who have never tried Edgeworth we make this offer:

Let us send you free samples of Edgeworth so that you may put it to the pipe test. If you like the samples, you'll like Edgeworth wherever and whenever you buy it, for it never changes in quality.

Write your name and address to Larus & Brother Company, 13 S. 21st Street, Richmond, Va.

We'll be grateful for the name and address of your tobacco dealer, too, if you care to add them.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Edgeworth Ready-Rubbed are packed in small, pocket-size packages, in handsome humidor holding a pound, and also in several handy in-between sizes.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready-Rubbed for the same price you would pay the jobber.

On your radio—tune in on WRVA, Richmond, Va.—the Edgeworth station. Wave length [254.1 meters], 1180 kilocycles.

Profitable Poultry

By Ralston R. Hannas

Poisoning—Common in Summer

IT IS very common to hear of poultry keepers having birds die in large numbers during the summer quite suddenly. There will probably be nothing the matter with the feed, and everything else may apparently be in tip-top shape. However, the chances are that most of the epidemics of sudden deaths can be traced to poisoning of some sort.

There are different forms of poisoning and some of the symptoms differ slightly, but in general the symptoms are as follows: the neck may be twisted back so the head of the fowl is turned way around over its back, or it may stand with its head bent way forward, the birds may lose control of their legs, the comb may turn black, there may be a large quantity of saliva resulting in choking, or there may be a diarrhea. Remember all these symptoms will probably not be present in one bird, there will probably be only a few of these present, but all birds that are affected will undoubtedly show the same symptoms.

This poisoning may be due to the fact that birds have picked at some dump heap where there were some paint skins or residue of a fruit or vegetable spray or some other similar material. Birds may have picked at a dead and decayed carcass and contracted ptomaine poisoning. A rat, rabbit, or a chicken may have died and been discovered by the birds.

The only thing to do is to inspect the yard or range where the birds are running and remove the cause, as there is practically no treatment for chickens that are poisoned. Inspect the runs once a week and see that birds do not have access to dump heaps. In order to try to save birds that may not be poisoned so badly as some of the others, give large quantities of sour milk or buttermilk.

When Production Counts

EVERYONE will agree that eggs produced in the fall when prices are high are profitable ones, yet few will realize that eggs produced in August and September are just as important. On many farms, the incomes for these months are the largest of any months of the year. Egg prices are going up, so stock that is still laying is making a good return to the owner.

Where a systematic culling system has been practiced, the birds that are left now are only the good ones, and the eggs that are produced are good sized ones—there are no pullet eggs from this flock as there are in the fall. With such birds, proper methods of feeding will bring out the eggs. Keep mash and grain, with enough grain to keep the hens in good condition—say seven or eight pounds per 100 birds per day—before them all the time.

The continued selection from year to year of the hens as breeders that continue laying through these months will strengthen this characteristic and will assure profits. Remember, August and September eggs are important, and the man who gets them from his flock makes money in these months.

Watch Your Young Stock

AT THIS TIME of the year we generally think of "weeding out" the adult stock, but it is just as important to think of this weeding out process in connection with the growing stock. There are several reasons why culling should be done in the flock, namely,

1. The runts and good-for-nothings will never amount to anything anyhow, no matter how long they are kept, and they might as well be gotten rid of as soon as possible.

2. There is a saving of feed on these birds that are culled out, thus bringing down the cost of maturing the good pullets.

3. These culls will bring in something in the way of cash, which will further reduce the cost of maturing the good pullets.

4. The removal of these culls makes more room for the rest of the birds, thus giving them a better chance to grow into real good pullets. This is of special value where the housing conditions are more or less limited and the range and green food are limited as well.

5. This culling makes possible the keeping of closer watch on the growth and development of the flock as a whole. The handling of the entire flock of youngsters at least twice during the summer enables the poultryman to know definitely just how they are doing as to weight and development.

6. It is possible to grade the pullets according to their stage of development if desired. Those that are developing too rapidly sexually can be held back until more flesh is put on, while the others are brought along normally.

How About the Buildings?

THE REGULAR poultry work slacks up a bit during the summer months, which gives the poultry keeper time to get his buildings in readiness for the fall. Now is the time to build new buildings if any are to be built. They can then be finished in time for the new pullets so the birds will not have to be disturbed after they are ready to go into the laying houses.

New buildings are not the only consideration, however; there are always some repairs that have to be made. Roofs, roosts and nests have to be repaired, new window lights have to be put in, sideboards must be nailed on, and other things are necessary to put the house in good shape. The house should be painted, not for looks alone, but for preservation.

Equipment should be cleaned, put in shape for use another season, and put away. Brooder stoves, especially, should be painted and stored away, and incubators should be cleaned to prevent rust and decay. This is the time for all this. Fences can be repaired, new ones stretched, holes in the old ones patched, new posts put in for old. These things can be done now when there is time; time will be saved later on; the work will be done—otherwise, it is likely to be, either only half done or not done at all.

A Simple Watering Device

A VERY SIMPLE device for keeping the drinking water pails filled, in houses or yards where the water is piped, can be made from the valve of an old automobile tire. The valve is merely removed from the tire, inverted, and by means of a step-down pipe in size, is fastened to the faucet or pipe. To the faucet or pipe, just above the valve, are fastened two pieces of metal, opposite each other and projecting out and down at an angle of about 45 degrees. A small spring is fastened to the end of each piece of metal, and at the other end of each of these springs is fastened a bar that runs straight across under the tire valve and fits up flush against it when the empty pail is hung on it.

The way the contrivance works is as follows: when the water pail is empty, the bar fits up against the valve and thus allows the water to run through the valve into the pail; when the pail is full, it pulls the bar away from the valve, closes the valve, and thus shuts off the water. It is automatic, inexpensive, and efficient. The lengths of the various pieces of

metal, bar, and so on, will have to be made according to the length of the valve, the distance above the valve it is possible to fasten, and the length and thickness of the springs.

Middle Georgia Peach Situation in 1927

(Continued from page 8)

riod of almost three weeks, while the Hiley came in and passed out quickly.

One of the greatest surprises to the growers was the fact that Elbertas and Hales in the Griffin and Woodbury sections, up among the clay hills of the Piedmont section and 75 miles north of the Fort Valley and Marshallville sections in the Coastal Plains, ripened and were shipped out ahead of the peaches from Fort Valley and Marshallville by from two to four days' time. Normally peaches in this section ripen from seven to 10 days ahead of peaches in the Griffin and Woodbury districts.

Forecasters Miss Dates of Ripening

Some of the forecasters in the large centers of trade having access to crop estimates and estimates of growers' organizations sent out circular matter placing the third and last peak of production of peaches from Georgia for July 15. This estimate was made for Elbertas and Hales, which produce the great peak of production in the state. This, for a normal season, would be early. However, the harvesting of Elbertas was begun 75 miles north of Fort Valley on June 25 and the orchards were stripped of the remnants of peaches left and practically all shipping finished in that district by July 11.

Influence of Fertilizers in 1927

In former years, fertilizer experiments with peaches have shown generally that a fertilizer mixture containing a high percentage of nitrogen had a tendency to set a heavier crop of peaches than one containing little nitrogen.

In 1927, fertilizer experiments conducted in both the Piedmont and Coastal Plain sections showed a very scanty setting of peaches on those trees receiving a fertilizer mixture carrying above six per cent of nitrogen. The delay in ripening, due to a high ratio of nitrogen in the fertilizer mixture, was emphasized in 1927. In our experimental plots, the ripening date of Elberta peaches was delayed as much as two weeks by increasing the percentage of nitrogen in the fertilizer mixture. It may not be well for the grower to carry this practice too far, however, as peaches so delayed in ripening are likely to be of poor color. The poor color is caused by a lack of sunlight reaching the peaches through the dense foliage rather than to a direct effect of nitrogenous fertilizers.

Why So Many Apparent Contradictions?

Almost every grower and peach buyer has a different explanation to offer for the several oddities which occurred in the peach game in 1927. A great majority of them, however, place the responsibility on the weather. The temperature, or cold injury, in the early part of the season has been held responsible for much of the strange behavior of the crop. The early part of the growing season was extremely dry, followed by excessive rains, which may have had some influence.

One point of correlation which some have tried to establish is the relation of cold injury to the time of ripening of peaches. There was a large percentage of "split seed" and "gum pocket," especially in the Elberta, this year. These defects were almost invariably coupled with early ripening. There were also some indications that the large percentage of "split seed" as well as "gum pockets" in the 1927 crop of peaches had a direct connection with the cold injury the crop suffered in the early spring. Whatever the explanation may be, the strange behavior of the 1927 peach crop in middle Georgia will be remembered for many years.

for Economical Transportation

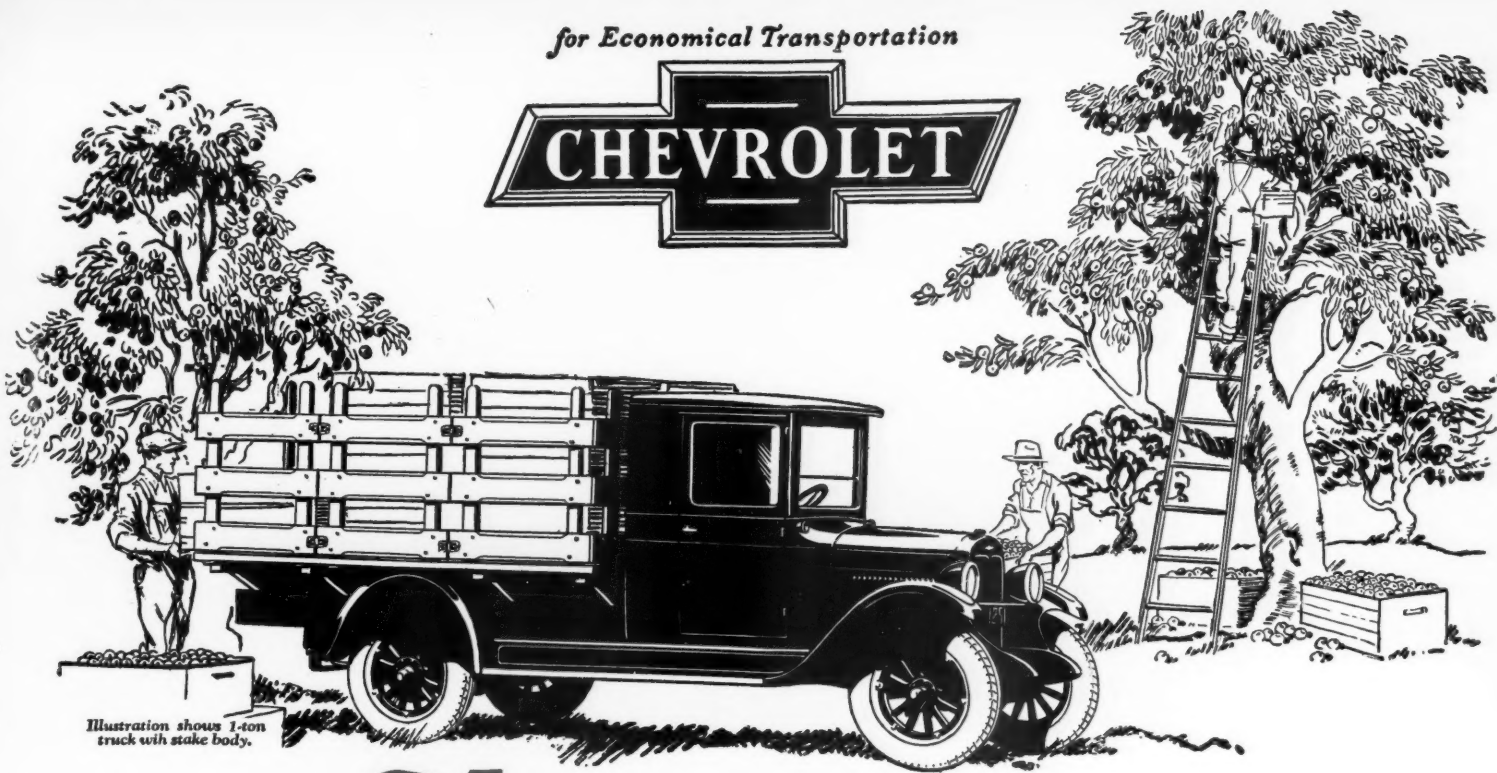


Illustration shows 1-ton truck with stake body.

The World's Lowest Ton-Mile Cost for Fruit Growers

Whether you need a truck for fast, economical delivery over city streets—

—whether your problem is the transportation of loads over all types of highways—

—or whether you need a truck for any special purpose—

—you can secure a Chevrolet Truck, with a type of body to meet your particular needs, that will give you the world's lowest ton-mile cost.*

Go to the salesroom of the nearest Chevrolet dealer and see for yourself how the sturdy, powerful Chevrolet Chassis is designed and built to reduce operating and maintenance costs. Observe the deep

channel steel frame, heavy banjo-type rear axle, and long extra-leaved, semi-elliptic springs—all constructed to operate under the severest usage. Note the powerful valve-in-head motor—dependable, efficient and long-lived.

Here, in every feature, is a type of construction once undreamed-of in a low-priced commercial car—

—ruggedness, strength and modern design which assure you the long-time, over-all operating efficiency that has made Chevrolet the world's most popular gear-shift truck—in every way an ideal truck for fruit growers.

*Ton-mile cost is the cost of transporting a ton of material one mile—or its equivalent.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

1/2-Ton Truck Chassis

1-Ton Truck
Chassis

\$495

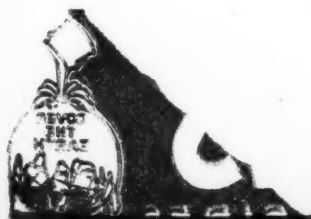
\$395

1-Ton Truck
Chassis with Cab \$610

All prices f.o.b. Flint, Michigan

Check Chevrolet Delivered Prices

They include the lowest handling and financing charges available.



World's Largest Builder of Gear-shift Trucks



There's a joker in the "cheap" paint barrel

WHEN anyone offers you a very tempting proposition on "cheap" paint, keep your eyes open. There's a "catch" in it somewhere.

No reputable concern can sell good house paint at a "cheap" price per gallon. And no unknown house is safe to deal with. No barrel of SWP House Paint is ever "planted" on the station platform. Don't be fooled by this "apple-sauce."

No "quality" paint is ever peddled from door to door or offered in highly colored circulars by some very friendly person whom you do not know who tells some impossible tale about saving money for you.



These are sharp tricks that have fooled many unwary buyers. Don't let them fool you. Remember, "cheap" paint isn't cheap at all.

"You can't make a silk purse out of a sow's ear." And you can't buy a house paint that will cover and hide and wear for years—for a "cheap" price.

Why SWP costs less

Fine old SWP House Paint costs more per gallon. That's because it is made of superfine materials—in the world's greatest paint laboratories. Because it is mixed and ground to creamy-smooth texture by power-driven machines which no hand-mixing can possibly equal.

But "gallon price" does not indicate the cost of painting. "Low price" is a delusion. Actually, a "cheap" paint

costs you from two to five times as much as SWP House Paint. And here is why:

A gallon of SWP House Paint covers 360 square feet, two coats. The average "cheap" paint must be greatly stretched to cover, poorly, a mere 250 square feet, two coats.

Therefore, nearly twice as many gallons of "cheap" paint are needed as of fine old SWP to cover the same area. Figure out the cost of the paint on that basis and your eyes will be opened. That is one angle of the "joker" in the "cheap" paint barrel.

Wonderful colors that last

But that's only the beginning. SWP House Paint will beautify and protect your building from two to five times as long as "cheap" paint.

SWP colors are unusually rich and true to character. They do not fade. Weather does not affect them. The film of SWP is tough and elastic. There is no chipping, peeling, chalking.

Most "cheap" paint begins to peel and chip and chalk almost before it is dry. It deteriorates very rapidly. Colors become "wishy-washy." In a very short time you have to burn or scrape the old stuff off and do it all over at heavy expense.

It's easy to see why cheap, trashy paint costs twice as much as SWP House Paint by the year. That's another angle of the "joker."

See "Paint Headquarters"

SWP House Paint is sold by reliable dealers in every part of the world.

Each one is "Paint Headquarters" in his vicinity.

Before you let any "bargain" offer lure you into a waste of money see the SWP dealer near you. He handles dependable merchandise. You probably know him personally. Get his advice, then decide. If you want color cards, advice from our experts or a copy of the famous Sherwin-Williams Farm Painting Guide, write us.

THE SHERWIN-WILLIAMS CO.

Largest Paint and Varnish Makers in the World
Cleveland, Ohio



Sherwin-Williams
Commonwealth
Barn Paint
(Red and Gray)

For barns, corn cribs,
roofs, fences and similar
outdoor surfaces.

Costs less on the wall
than "cheap" barn paint

SHERWIN-WILLIAMS

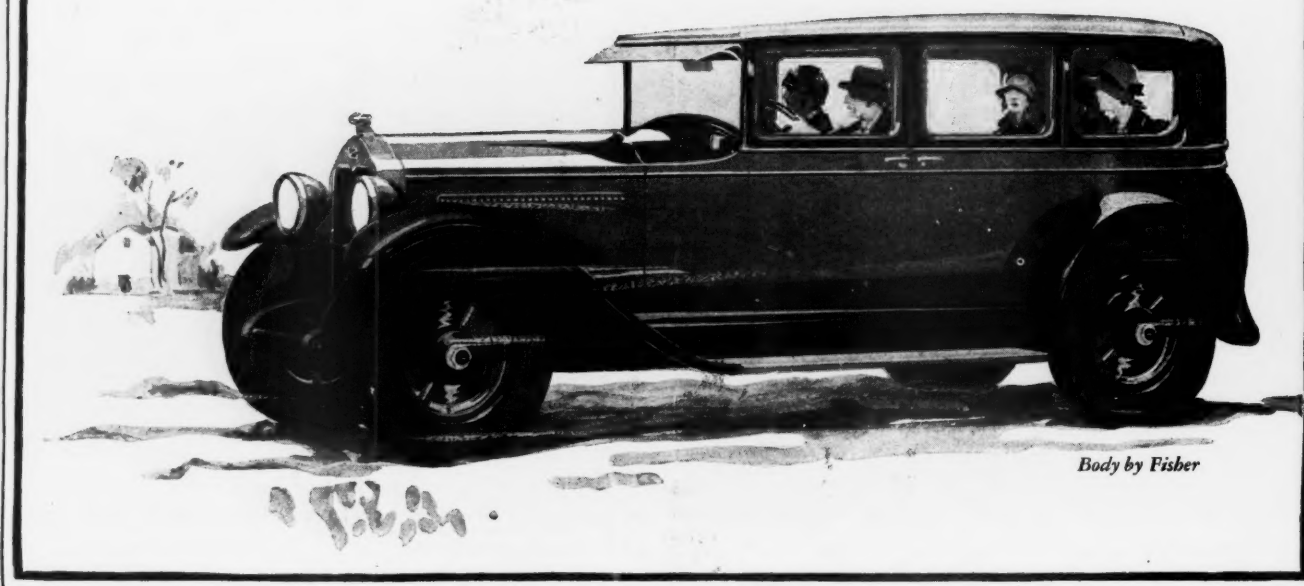
PAINTS · VARNISHES · LACQUERS · INSECTICIDES

AMERICAN FRUIT GROWER MAGAZINE



October, 1927
Ten Cents a Copy

BUICK *for* 1928



Buick makes *every* road a boulevard

Bumpy, rutty, uneven highways ride like boulevards in a Buick for 1928. Important improvements impart a matchless riding ease—a smoothness over any road in any weather—which assure you a comfortable trip, no matter how far you may drive in a day.

Hydraulic Shock Absorbers

In addition to Buick's famous cantilever springs, Buick for 1928 has hydraulic shock absorbers, front and rear. These have been made an integral part of the Buick chassis, and are *standard equipment* on all models.

The Low-Swung Body

Bodies swung smartly low by means of the exclusive Buick double-drop frame provide greatly increased roadability due to their lowered center of gravity.

—and Matchless Beauty, too

Long, low, flowing lines—surpassingly beautiful color harmonies, inside and out—and restful form-fitting tailored seat cushions—all combine to make every ride in a Buick for 1928 the most pleasing you have ever known.

BUICK MOTOR COMPANY, FLINT, MICHIGAN

Division of General Motors Corporation

Canadian Factories: McLAUGHLIN-BUICK, Oshawa, Ont.

WHEN BETTER AUTOMOBILES ARE BUILT. BUICK WILL BUILD THEM

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